# 2004 DRIVELINE/AXLES

## Wheel Drive Shafts - Blazer/S-10, Jimmy/Sonoma

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

**Fastener Tightening Specifications**

| Application | Specification | |
|---|---|---|
| | Metric | English |
| ABS Wire Support Bracket Mounting Nut | 17 N.m | 13 lb ft |
| Brake Hose Support Bracket Mounting Nut | 17 N.m | 13 lb ft |
| Differential Carrier Shield Bolts | 25 N.m | 19 lb ft |
| Drive Shaft Outer Joint Large Seal Retainer | 176 N.m | 130 lb ft |
| Wheel Drive Shaft Nut | 140 N.m | 103 lb ft |

## COMPONENT LOCATOR

### WHEEL DRIVE SHAFTS DISASSEMBLED VIEWS

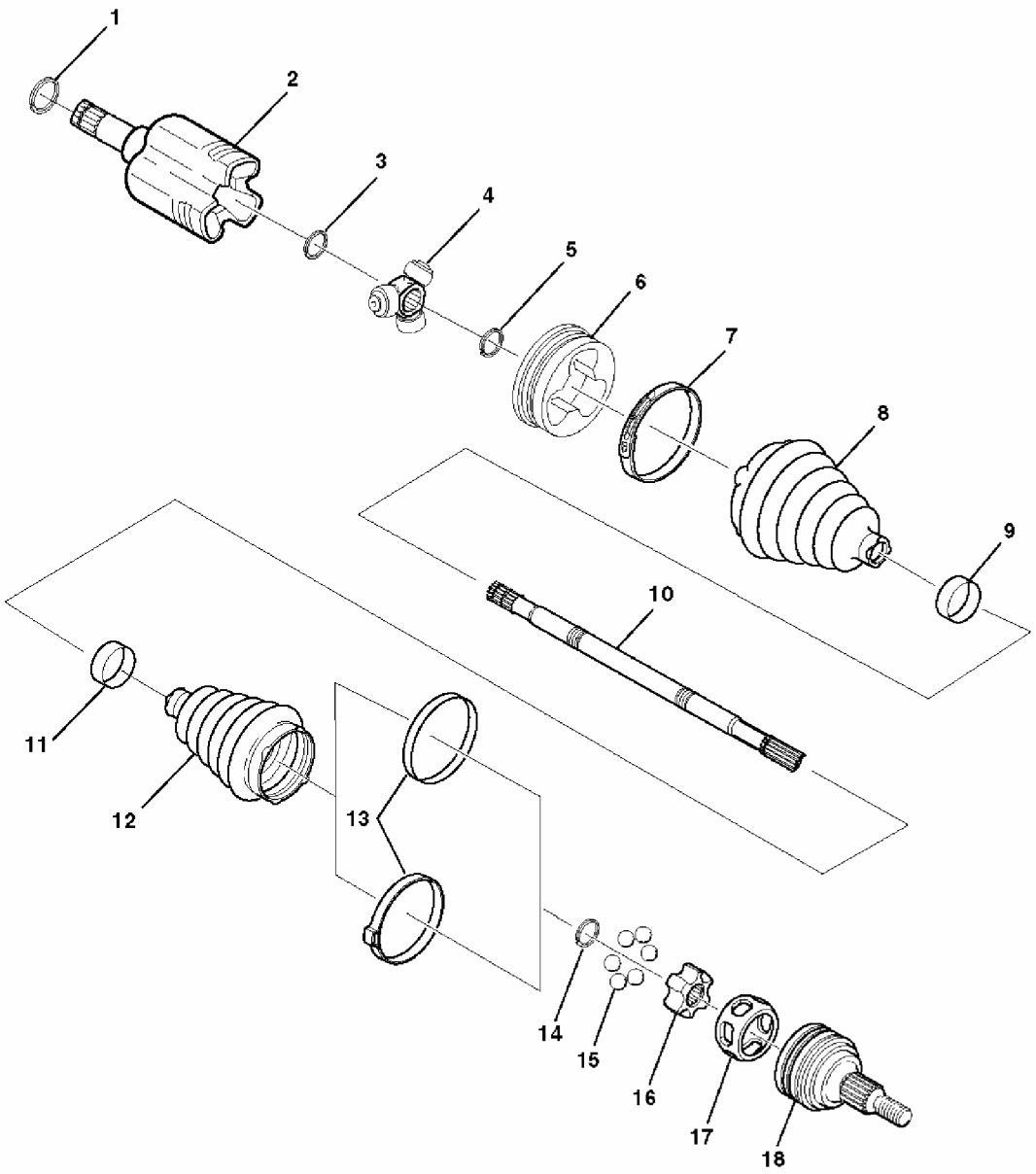



**Fig. 1: Halfshaft Disassembled View**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 1**

| Callout | Component Name |
|---|---|
| 1 | Differential Shaft Ring |
| 2 | Tripot Housing Assembly |
| 3 | Spacer Ring |
| 4 | Tripot Joint Spider Assembly |
| 5 | Spacer Ring |
| | |

| | |
|---|---|
| 6 | Tripot Bushing |
| 7 | Boot Retaining Clamp |
| 8 | Tripot Joint Boot |
| 9 | Halfshaft Swage Ring |
| 10 | Halfshaft Bar |
| 11 | Halfshaft Swage Ring |
| 12 | CV Joint Boot |
| 13 | Swage Ring/Clamp |
| 14 | Race Retaining Ring |
| 15 | Ball |
| 16 | CV Joint Inner Race |
| 17 | CV Joint Cage |
| 18 | CV Joint Outer Race |

## DIAGNOSTIC INFORMATION AND PROCEDURES

### DIAGNOSTIC STARTING POINT - WHEEL DRIVE SHAFTS

Begin the system diagnosis by reviewing the system Description and Operation. Reviewing the Description and Operation will help you to determine the correct symptom diagnostic procedure when a malfunction exist. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to **Symptoms - Wheel Drive Shafts** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

### SYMPTOMS - WHEEL DRIVE SHAFTS

Before beginning diagnosis, review the system description and operation in order to familiarize yourself with the system function. Refer to **Wheel Drive Shafts Description and Operation**.

#### Classifying the Symptom

Wheel Drive Shaft symptoms can usually be classified into the following categories:

- Noises
- Vibrations

Noise related concerns are diagnosed within the Wheel Drive Shafts section. For vibration related symptoms, refer to **Diagnostic Starting Point - Vibration Diagnosis and Correction** in Vibration Diagnosis and Correction for diagnosis.

#### Visual/Physical Inspection

- Inspect the system for aftermarket devices which could affect the operation of the Wheel Drive Shafts.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

**Symptom List**

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Click Noise In Turns**
- **Clunk When Accelerating from Coast**
- **Clunk Noise When Accelerating During Turns**

**CLICK NOISE IN TURNS**

## Click Noise In Turns

| Step | Action | Yes | No |
|---|---|---|---|
| DEFINITION: Clicking noise while turning in drive under load. | | | |
| 1 | Check for worn or damaged outer CV joints.<br>Are the outer CV joints/seals worn? | Go to **Step 2** | System OK |
| 2 | Replace the outer CV joints/seals. Refer to **Wheel Drive Shaft Outer Joint and Seal Replacement**.<br>Is the repair complete? | System OK | - |

**CLUNK WHEN ACCELERATING FROM COAST**

## Clunk When Accelerating from Coast

| Step | Action | Value(s) | Yes | No |
|---|---|---|---|---|
| DEFINITION: A clunking noise present when accelerating from coast to drive under load. | | | | |
| 1 | Check for a loose wheel drive shaft to hub assembly nut.<br>Is the wheel drive shaft nut loose? | - | Go to **Step 2** | Go to **Step 3** |
| 2 | Tighten the wheel drive shaft to hub assembly nut to specification.<br>Is the repair complete? | 140 N.m (103 lb ft) | System OK | - |
| 3 | Check for a damaged inner CV joint.<br>Is the inner CV joint damaged? | - | Go to **Step 4** | System OK |
| 4 | Replace the inner CV joint. Refer to **Wheel Drive Shaft Inner Joint and Seal Replacement**. | - | | |

| | | | | |
|---|---|---|---|---|
| | Is the repair complete? | | System OK | - |

**CLUNK NOISE WHEN ACCELERATING DURING TURNS**

**Clunk Noise When Accelerating During Turns**

| Step | Action | Yes | No |
|---|---|---|---|
| 1 | Check for worn or damaged outer CV joints and/or seals.<br>Are the outer CV joints/seals worn? | Go to **Step 2** | System OK |
| 2 | Replace the outer CV joints/seals. Refer to **Wheel Drive Shaft Outer Joint and Seal Replacement**.<br>Is the repair complete? | System OK | - |

## REPAIR INSTRUCTIONS

**WHEEL DRIVE SHAFT REPLACEMENT**

**Removal Procedure**

1. Unlock the steering column so that the steering linkage is free to move.

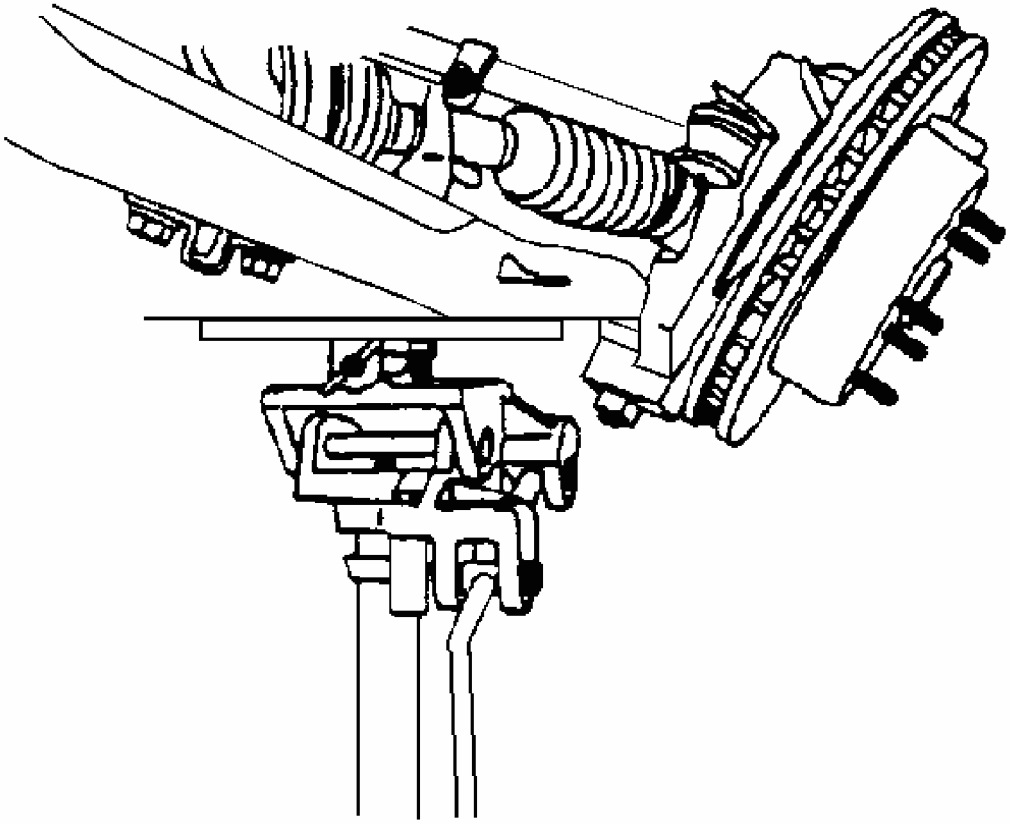


**Fig. 2: Positioning Safety Stand Under Lower Control Arm**
**Courtesy of GENERAL MOTORS CORP.**

2. Raise the vehicle. Support the vehicle with suitable safety stands. Refer to **Lifting and Jacking the Vehicle** in General Information.
3. Remove the 2 front tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

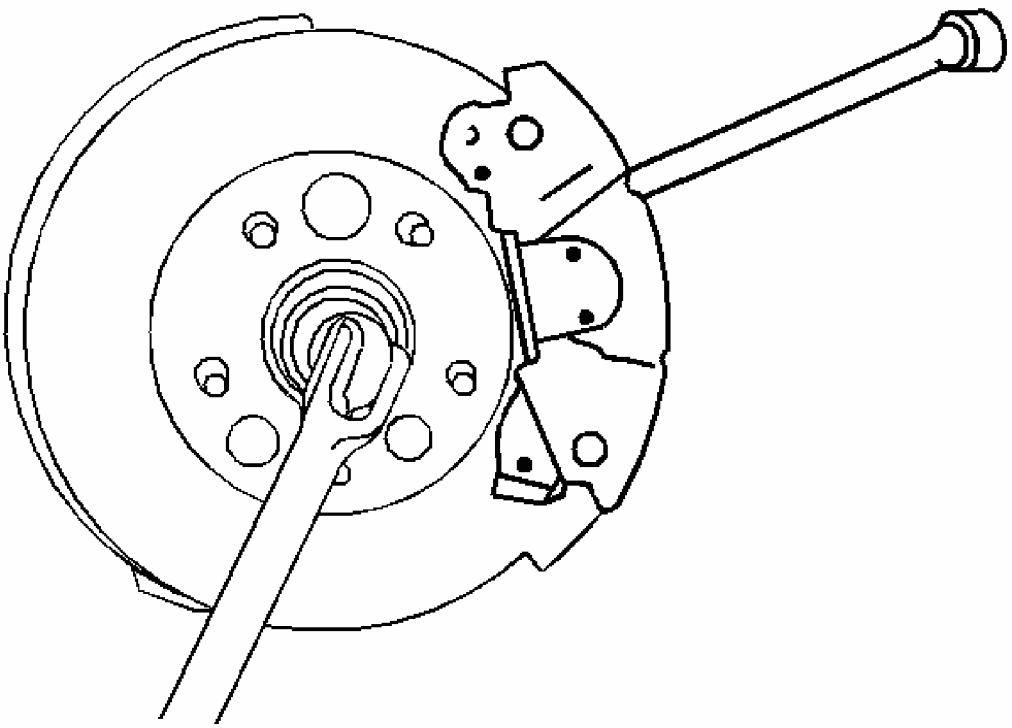


**Fig. 3: Preventing Drive Axle From Turning**
**Courtesy of GENERAL MOTORS CORP.**

4. In order to prevent the drive axle from turning, insert a drift through the brake caliper and into one of the rotor vanes.

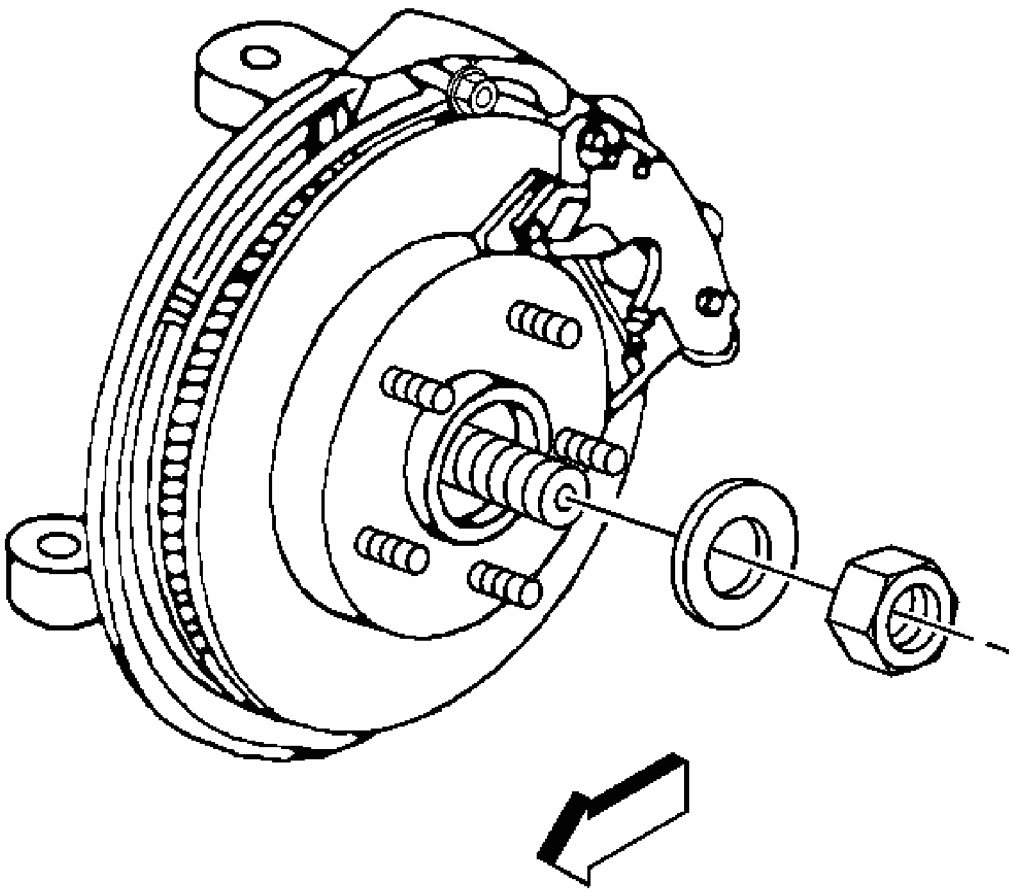


**Fig. 4: View Of Axle Nut & Washer**
**Courtesy of GENERAL MOTORS CORP.**

5. Remove the axle nut and washer.
6. Remove the drift from the brake rotor.
7. Remove the front brake rotors and support the caliper with a piece of wire in order to prevent damage to the brake hose. Refer to **Brake Rotor Replacement - Front** in Disc Brakes.

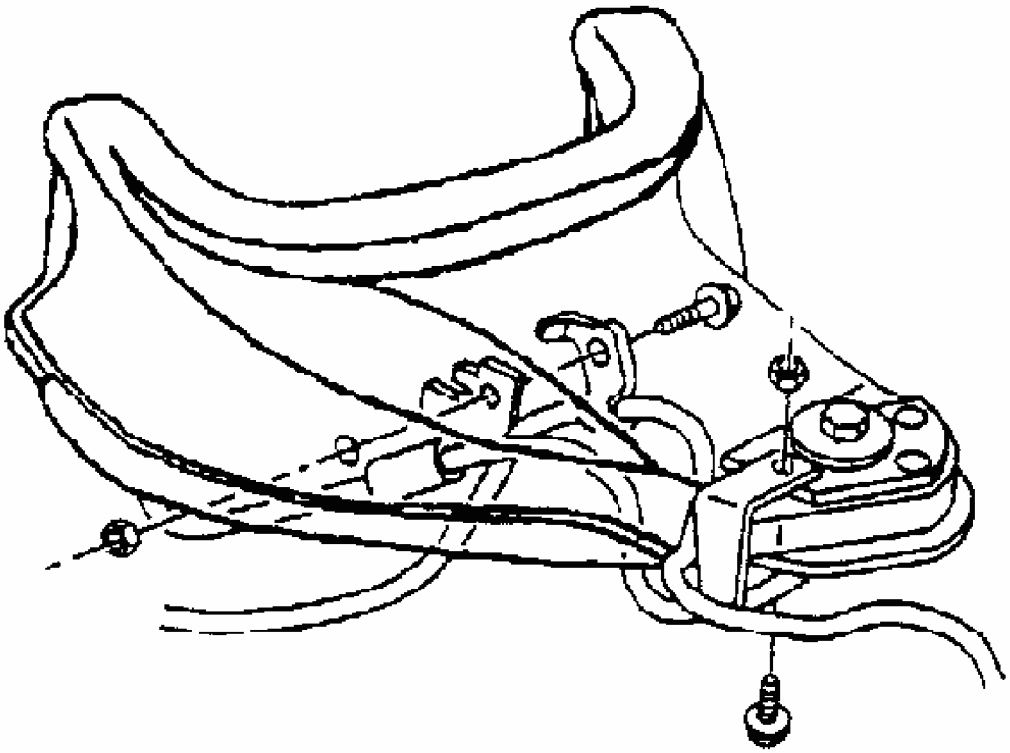


**Fig. 5: View Of ABS Bracket**
**Courtesy of GENERAL MOTORS CORP.**

8. Remove the brackets from the upper control arm holding both the ABS wire and the brake hose.
9. Remove the ABS bracket located on the top of the upper control arm ball joint.

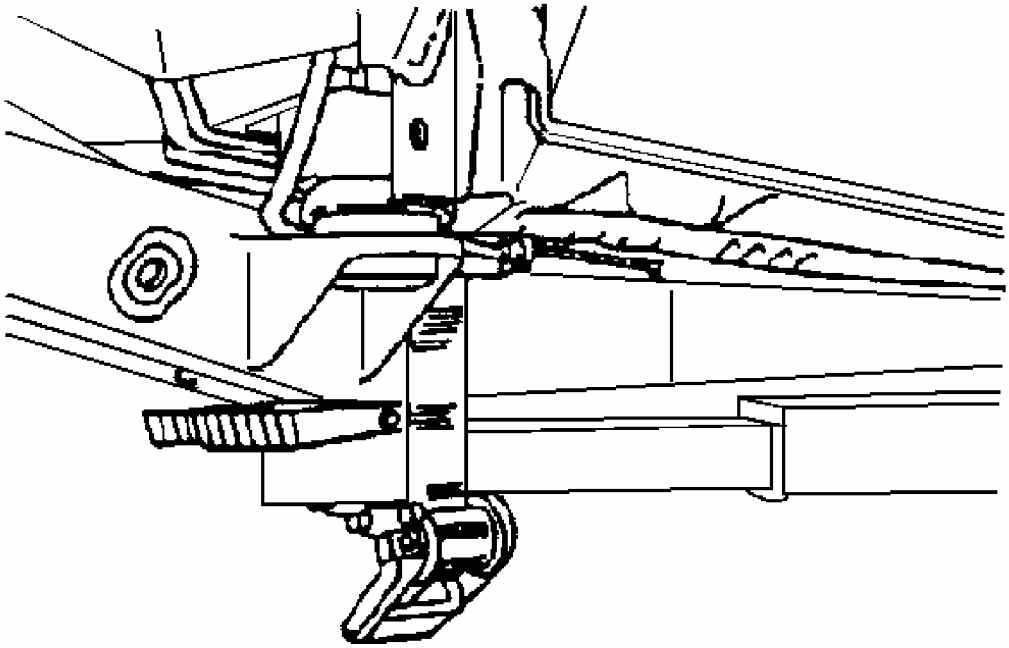


**Fig. 6: Strapping Hoist To Frame**
**Courtesy of GENERAL MOTORS CORP.**

10. Strap the frame to the hoist in order to prevent movement.

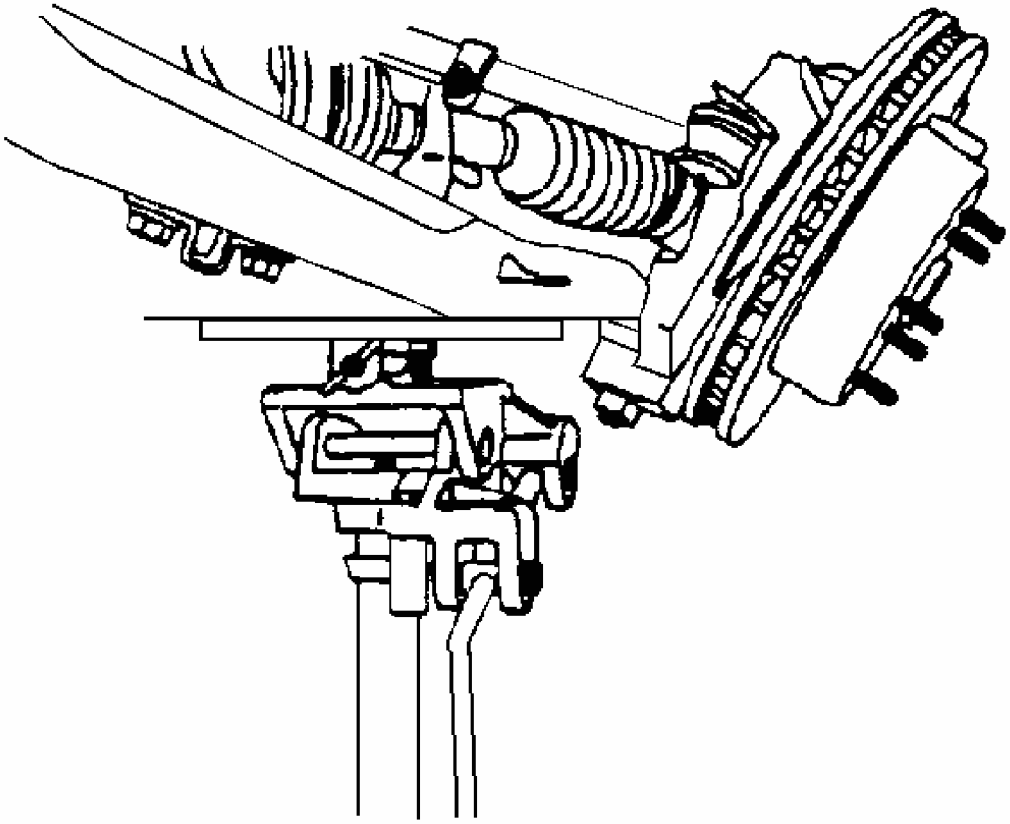


**Fig. 7: Positioning Safety Stand Under Lower Control Arm**
**Courtesy of GENERAL MOTORS CORP.**

**NOTE: Be careful that the safety stand does not damage or bend any components it may contact.**

11. Position a safety stand under the lower control arm.
12. Support the weight of the steering knuckle assembly and lower control arm with a safety stand.

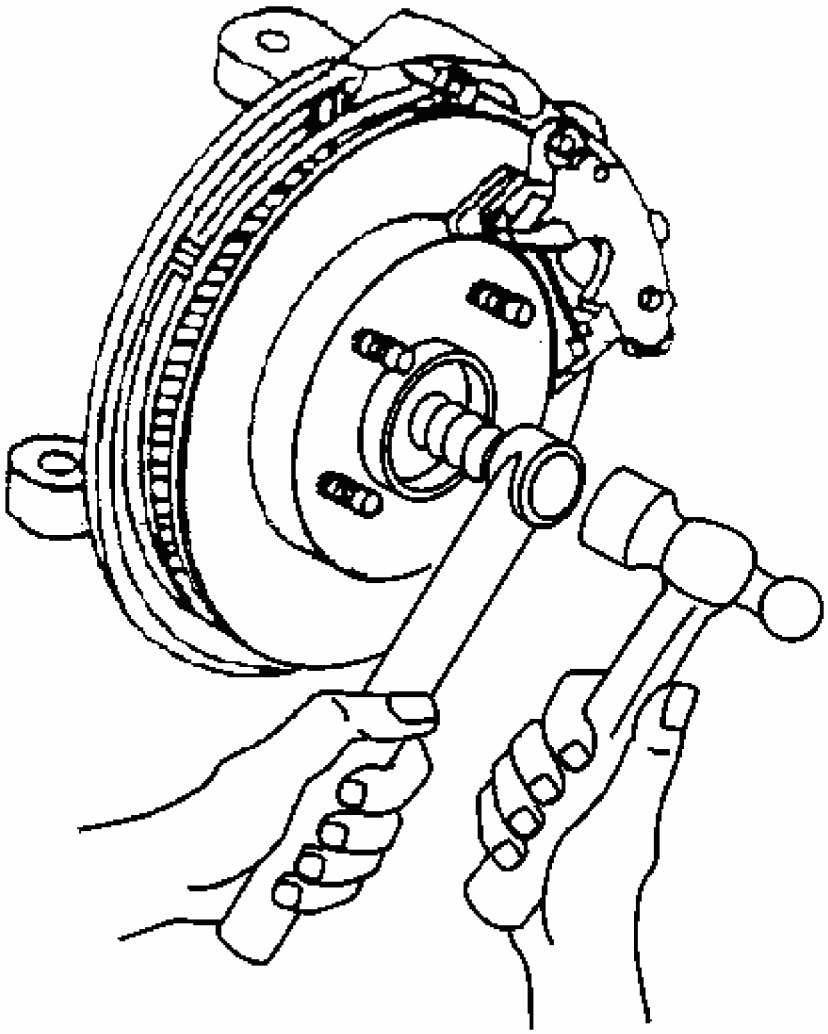


**Fig. 8: Disengaging Wheel Drive Shaft From Hub**
**Courtesy of GENERAL MOTORS CORP.**

13. Disengage the wheel drive shaft from the hub by placing a brass drift against the outer end of the drive axle in order to protect the threads. Sharply strike the brass drift with a hammer. Do not attempt to remove the axle at this time.
14. Support the steering knuckle and assembly with a piece of wire in order to prevent damage to the outer tie rod and ABS wire.
15. Disconnect the upper ball joint from the steering knuckle. Refer to **Upper Ball Joint Replacement (RWD)** **Upper Ball Joint Replacement (4WD)** in Front Suspension.
16. Remove the lower part of shock absorber. Refer to **Shock Absorber Replacement**

**(RWD) Shock Absorber Replacement (4WD)** in Front Suspension.

17. Disconnect the lower ball joint from the steering knuckle. Refer to **Steering Knuckle Replacement (RWD) Steering Knuckle Replacement (4WD)** in Front Suspension.
18. After the lower ball joint is loose from the knuckle, simultaneously push the axle shaft in toward the differential carrier in order to allow room for the knuckle and assembly to be removed.
19. Remove the axle from the steering knuckle assembly.

**IMPORTANT: Lower the safety stand from the lower control arm in order to relieve the pressure of the torsion bar and in order to allow for clearance.**
**Do not damage the axle seal during removal of the differential carrier shield.**

20. Remove the front differential carrier shield. Refer to **Shield Replacement** .

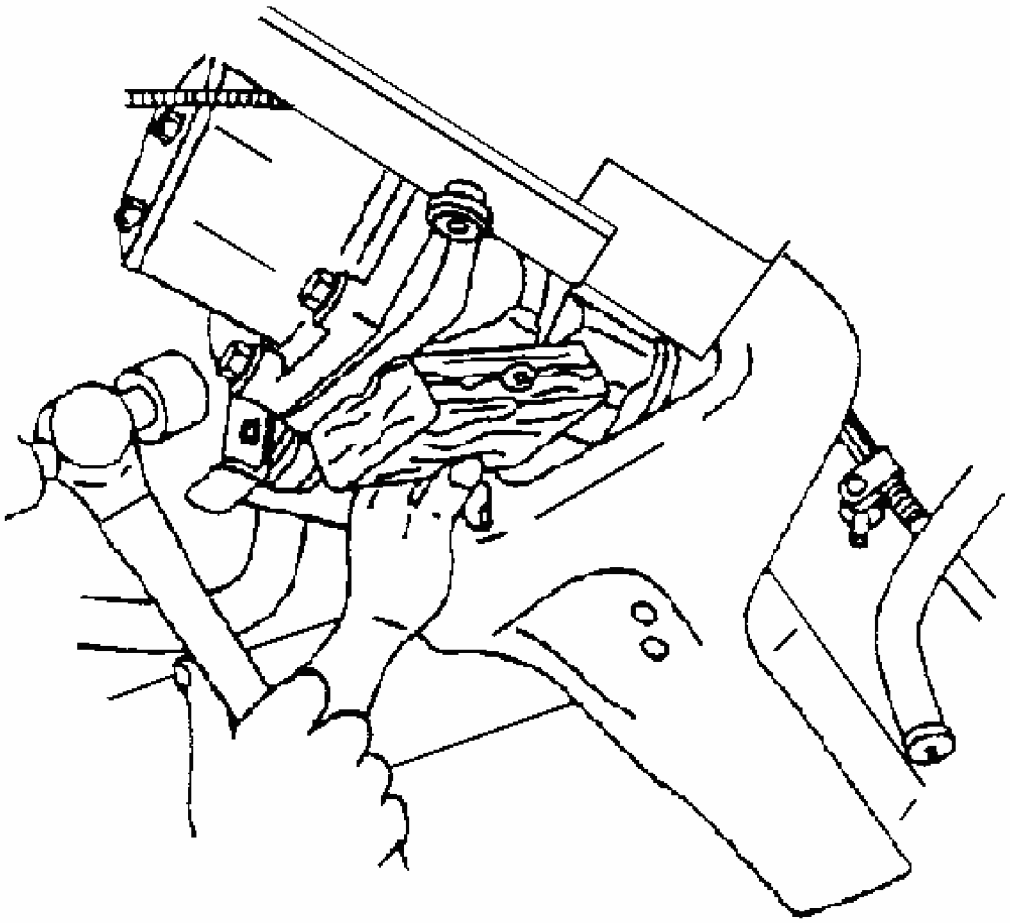


**Fig. 9: Disconnecting Left Side Wheel Drive Shaft From Differential Carrier**
**Courtesy of GENERAL MOTORS CORP.**

21. Disconnect the left side wheel drive shaft from the differential carrier by placing a block of wood or a brass drift against the tripot housing. Firmly strike the block of wood outward from the case with a hammer. Strike hard enough to overcome the snap ring pressure holding in the shaft.

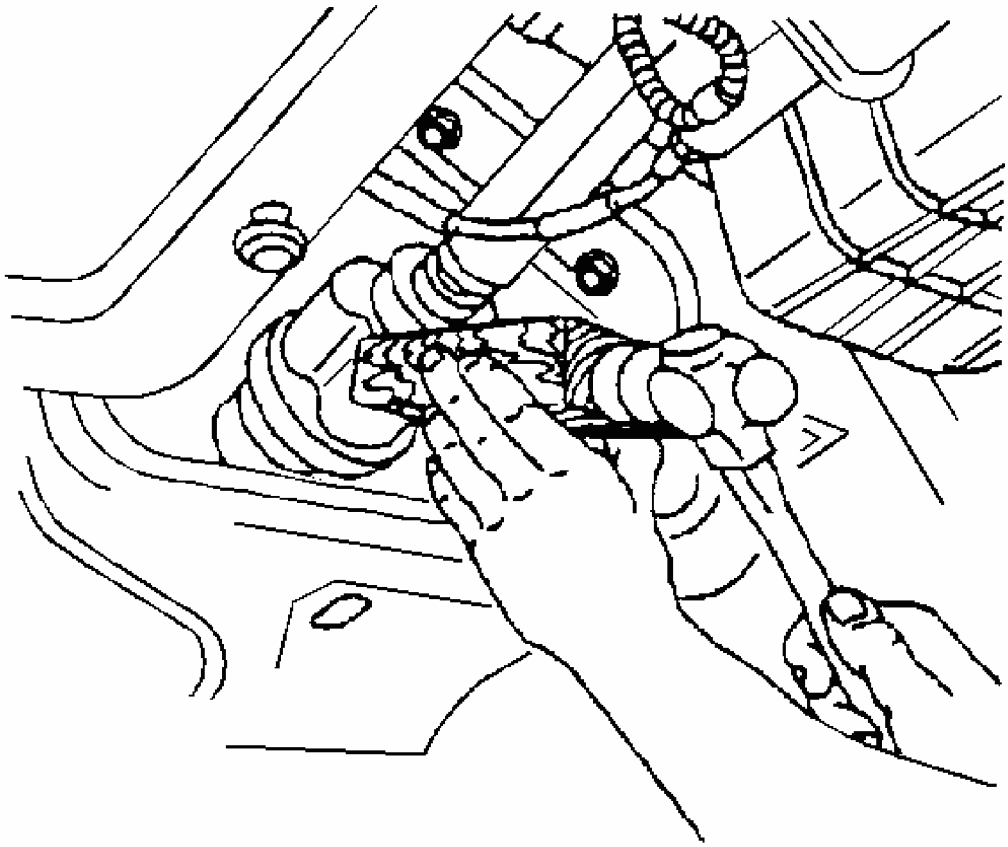


**Fig. 10: Disconnecting Right Side Wheel Drive Shaft From Differential Carrier**
**Courtesy of GENERAL MOTORS CORP.**

22. Disconnect the right side wheel drive shaft from the differential carrier by placing a block of wood or a brass drift against the tripot housing. Firmly strike the block of wood outward from the case with a hammer. Strike hard enough to overcome the snap ring pressure holding in the shaft.

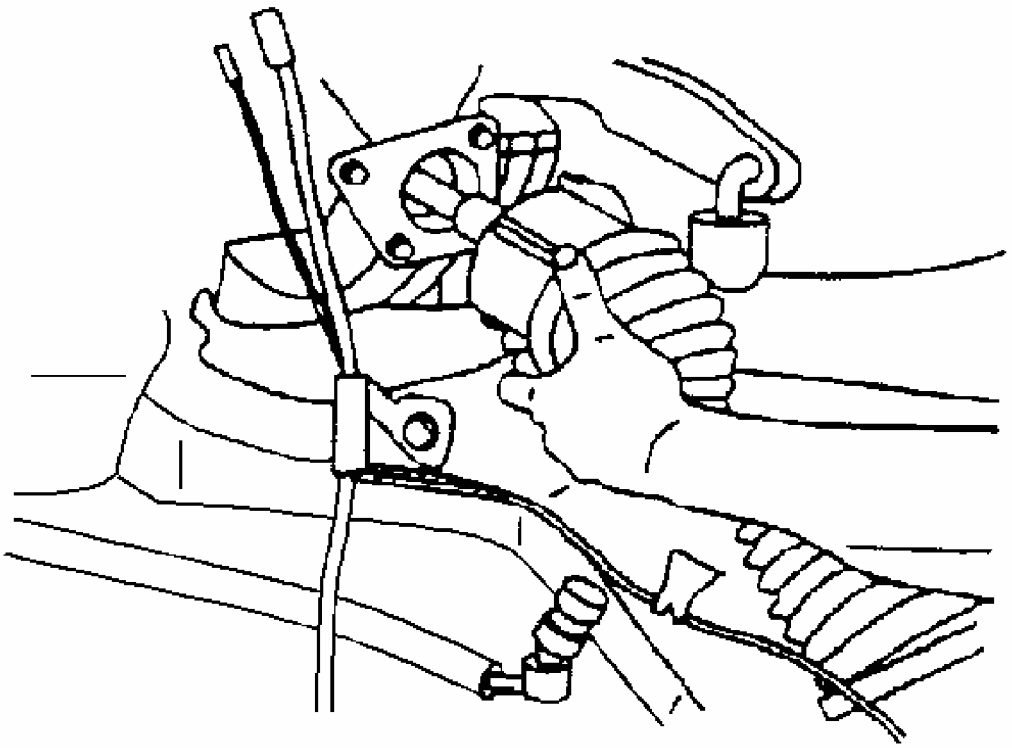


**Fig. 11: View Of Wheel Drive Shaft To Differential Carrier**
**Courtesy of GENERAL MOTORS CORP.**

23. Pull the axle straight out from the differential carrier.
24. Support the drive axle so as not to tear the boot.

**CAUTION: To prevent personal injury and/or component damage, do not allow the weight of the vehicle to load the front wheels, or attempt to operate the vehicle, when the wheel drive shaft(s) or wheel drive shaft nut(s) are removed. To do so may cause the inner bearing race to separate, resulting in damage to brake and suspension components and loss of vehicle control.**

25. Remove the drive axle.

**Installation Procedure**

**IMPORTANT: Do not lubricate or damage the differential carrier axle seals during installation.**

1. In order to prevent damage to the boot, cover the following components with a shop towel:
   - The shock mounting bracket
   - The lower control arm ball stud
   - All other sharp edges

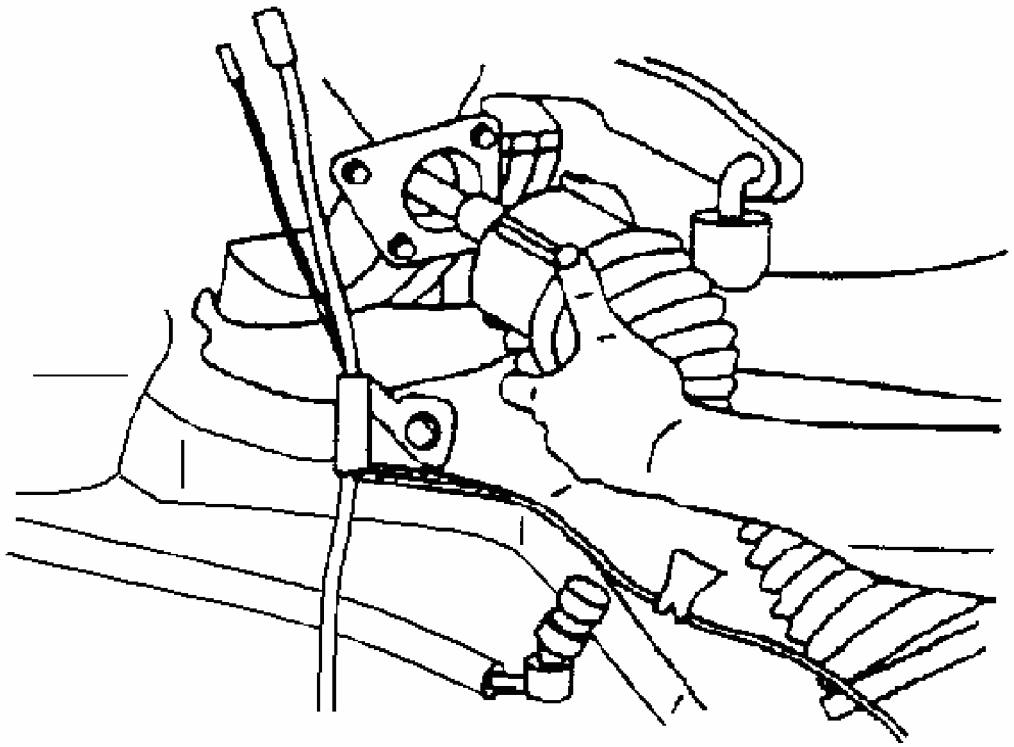


**Fig. 12: View Of Wheel Drive Shaft To Differential Carrier**
**Courtesy of GENERAL MOTORS CORP.**

2. Install the wheel drive shaft to the differential carrier.
   A. With both hands on the tripot housing, align the splines on the shaft with the differential carrier.
   B. Center the drive axle into the differential carrier seal.
   C. Firmly push the shaft straight into the differential carrier until the snap ring seats into place.

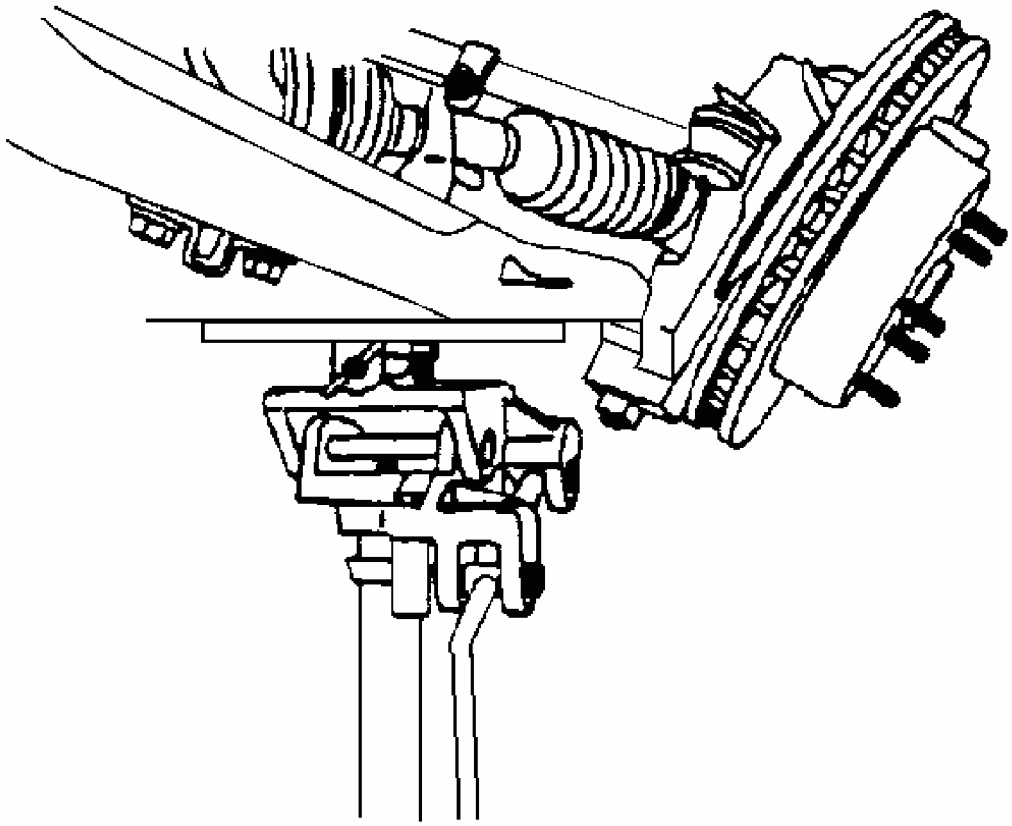


**Fig. 13: Positioning Safety Stand Under Lower Control Arm**
**Courtesy of GENERAL MOTORS CORP.**

**NOTE: Be careful that the safety stand does not damage or bend any components it may contact.**

3. Raise the safety stand to support the weight of the lower control arm.

**IMPORTANT: It will be necessary to slightly start the knuckle onto the drive axle while simultaneously guiding the lower ball stud to its proper location on the steering knuckle.**

4. Reconnect the lower ball joint to the steering knuckle. Refer to **Steering Knuckle Replacement (RWD)** **Steering Knuckle Replacement (4WD)** in Front Suspension.
5. Install the lower part of the shock absorber. Refer to **Shock Absorber Replacement (RWD)** **Shock Absorber Replacement (4WD)** in Front Suspension.
6. Reconnect the upper ball joint to the steering knuckle. Refer to **Upper Ball Joint**

**Replacement (RWD)** **Upper Ball Joint Replacement (4WD)** in Front Suspension.

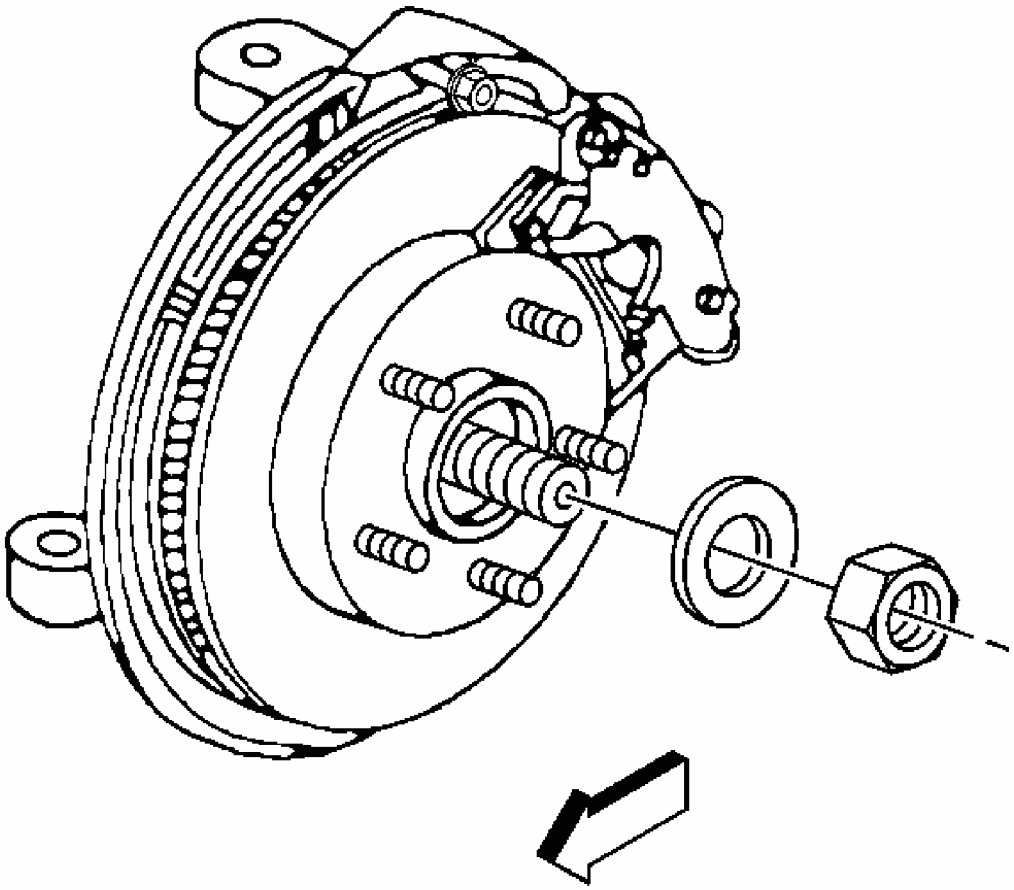


**Fig. 14: View Of Axle Nut & Washer**
**Courtesy of GENERAL MOTORS CORP.**

7. Install the drive axle washer and nut.

**NOTE:** **Refer to Fastener Notice in Cautions and Notices.**

8. Install the wheel drive shaft nut.

**Tighten:** Tighten the nut to 140 N.m (103 lb ft).

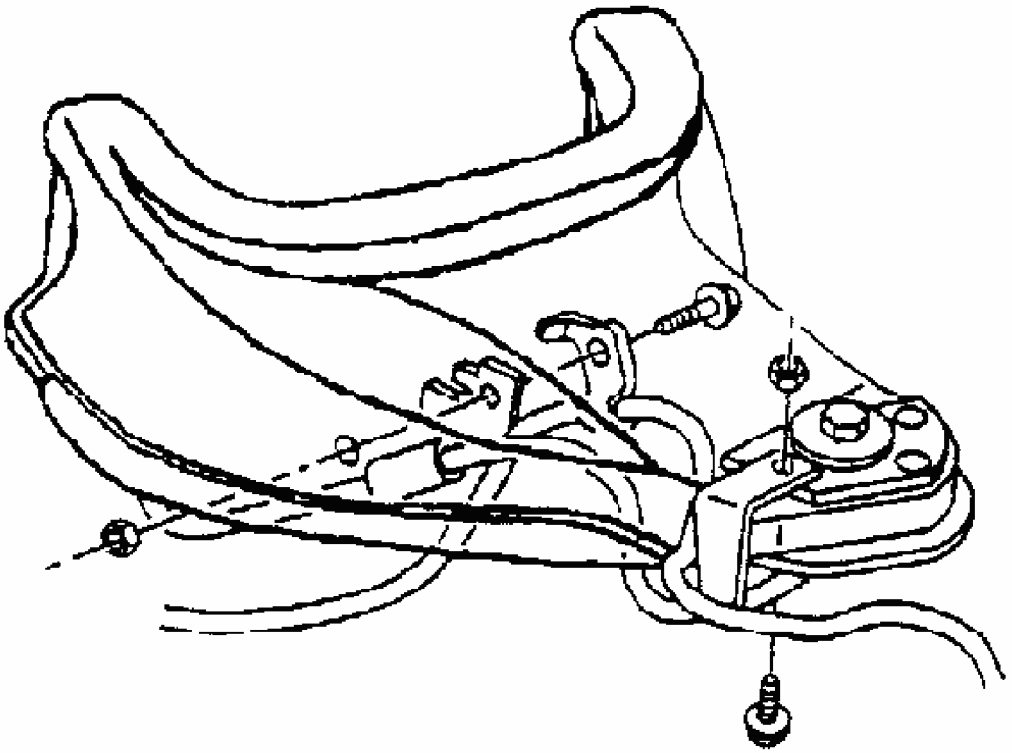


**Fig. 15: View Of ABS Bracket**
**Courtesy of GENERAL MOTORS CORP.**

9. Install the ABS bracket located on the top of the upper control arm ball joint.
10. Install the brackets from the upper control arm holding both the ABS wire and the brake hose.
11. Install the front brake rotors. Refer to **Brake Rotor Replacement - Front** in Disc Brakes.
12. Install the front differential carrier shield. Refer to **Shield Replacement** in Front Drive Axle.
13. Remove the strap from the frame.
14. Install the two front tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
15. Lower the vehicle.

**WHEEL DRIVE SHAFT INNER JOINT AND SEAL REPLACEMENT**

**Tools Required**

- **J 41048** Swage Clamp Tool. See **Special Tools and Equipment**.
- **J 35566** Drive Axle Seal Clamp Plier. See **Special Tools and Equipment**.
- **J 8059** Snap Ring Pliers. See **Special Tools and Equipment**.

**Disassembly Procedure**

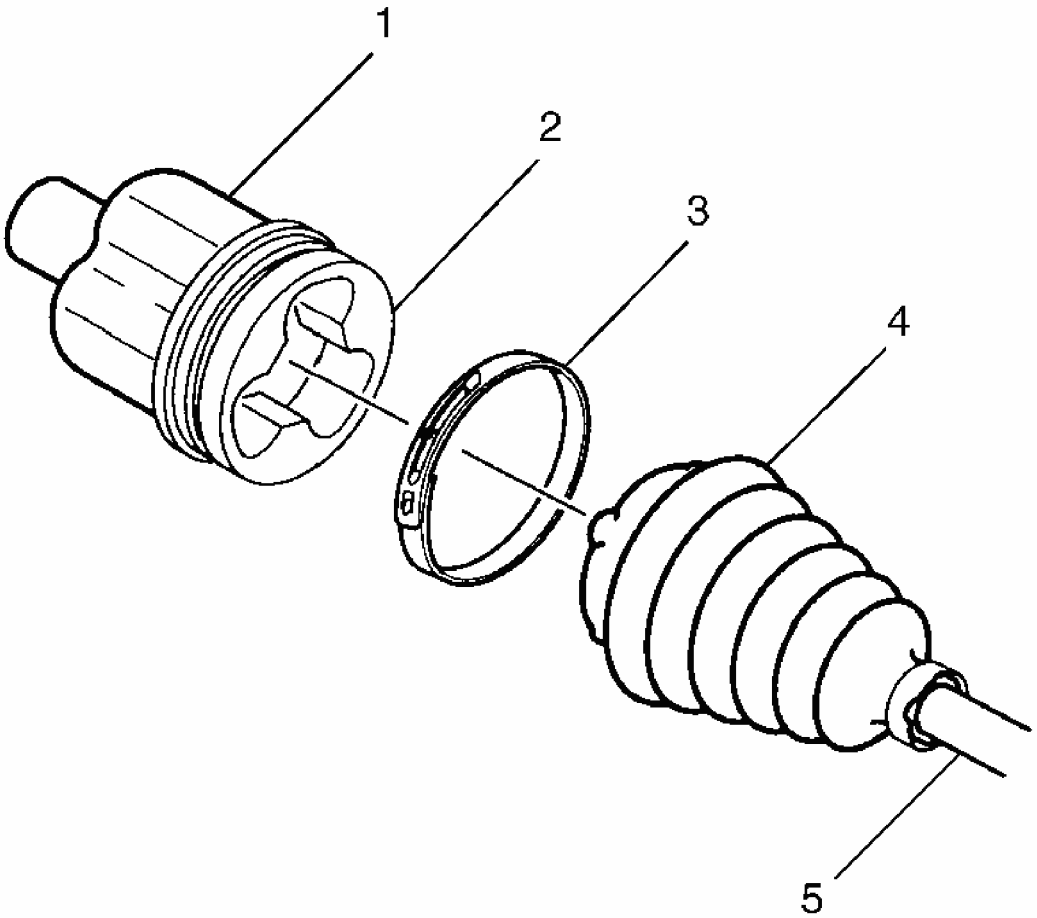



**Fig. 16: Locating Wheel Drive Shaft Inner Joint & Seal Components**
**Courtesy of GENERAL MOTORS CORP.**

1. Remove the clamp from the boot with a pair of side cutters.

**IMPORTANT: Do not damage the tripot housing (1).**

2. Use a hand grinder to cut through the swage ring.
3. Remove the tripot housing (1) and the trilobal tripot bushing (2) from the halfshaft bar

(5).

4. Thoroughly degrease the housing (1) and the spider assembly.
5. Discard the tripot bushing.
6. Use 320 grit 3M cloth, or equivalent, to remove any evident corrosion in the transmission sealing surface.
7. Allow the housing (1) and the spider assembly to dry.

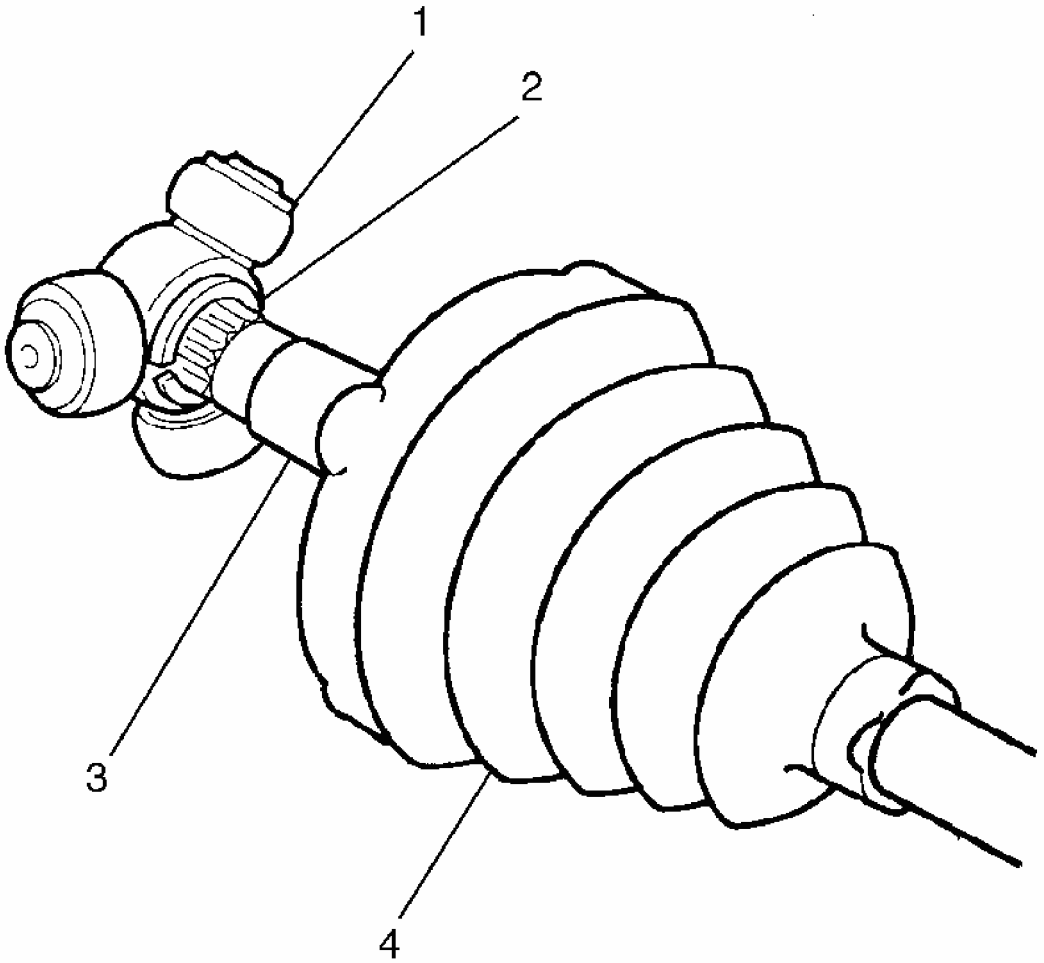



**Fig. 17: Locating Tripot Spider Assembly Components**
**Courtesy of GENERAL MOTORS CORP.**

**IMPORTANT: Handle the tripot spider assembly (1) with care. Tripot balls and needle rollers may separate from the spider trunnion if the tripot balls and needle rollers are not handled carefully.**

8. Compress the tripot boot (4) onto the halfshaft bar (3), away from the spider assembly (1).

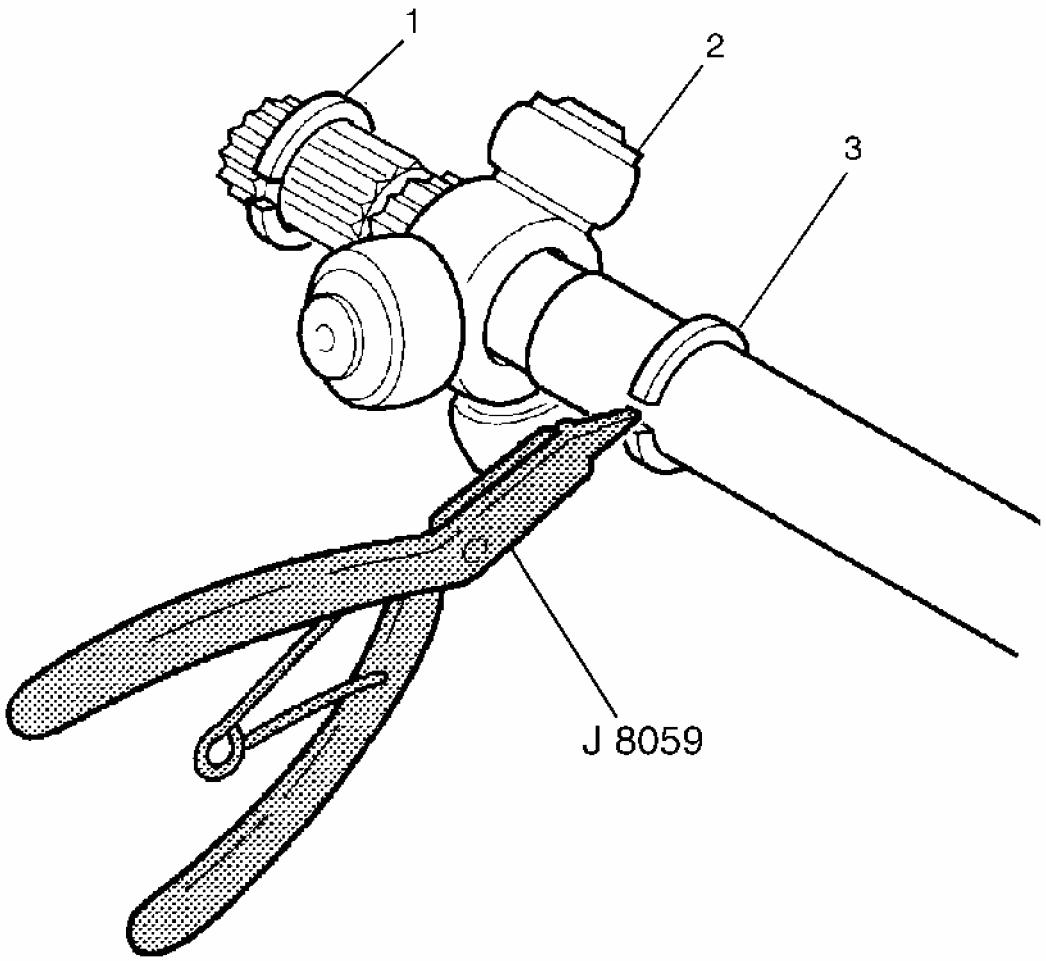



**Fig. 18: Locating Tripot Spider Assembly Components**
**Courtesy of GENERAL MOTORS CORP.**

9. Spread the spacer rings (1, 3) using **J 8059** , or equivalent, to remove the spider assembly (2).

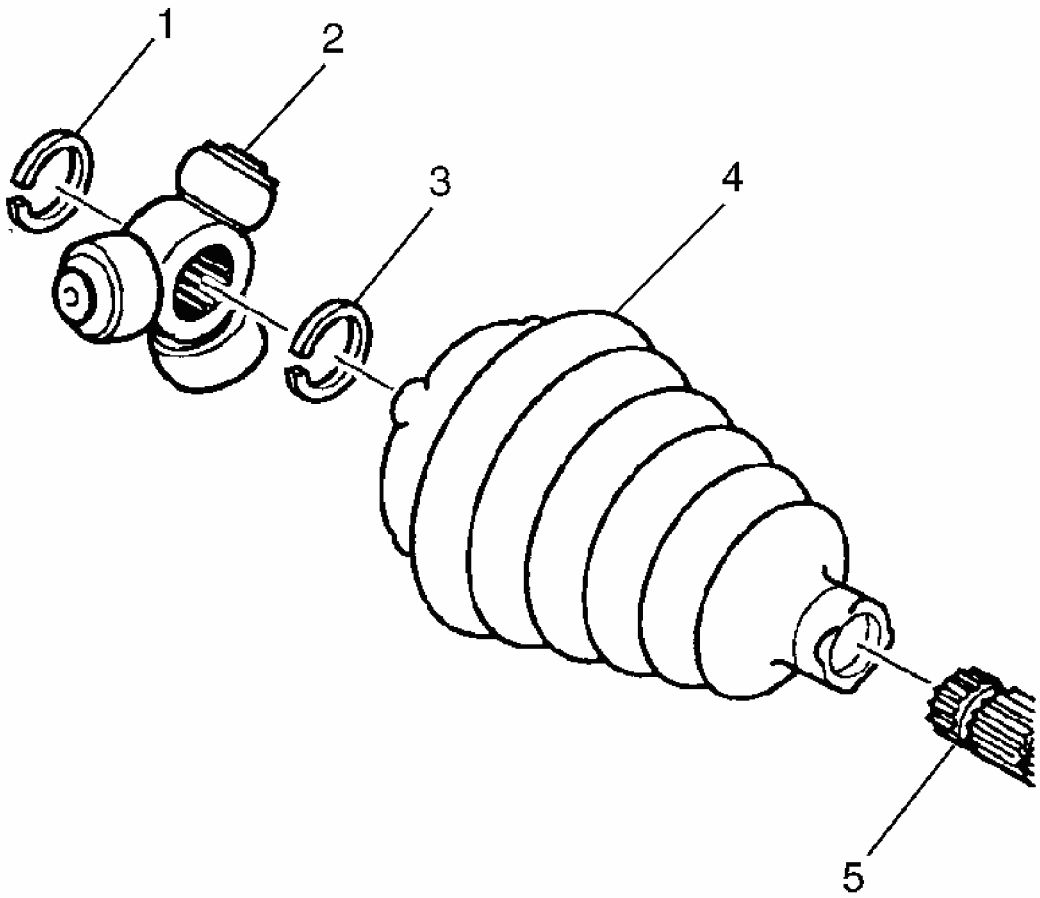



**Fig. 19: View Of Spider Assembly, Rings & Tripot Boot**
**Courtesy of GENERAL MOTORS CORP.**

10. Remove the following items:
    - The spacer ring (1)
    - The spider assembly (2)
    - The second spacer ring (3)
    - The tripot boot (4)
11. Discard the tripot boot and spacer rings.
12. Clean the halfshaft bar. Use a wire brush to remove any rust in the boot mounting area grooves.
13. Inspect the following items:
    - The needle rollers
    - The needle bearings
    - The trunnion

14. Inspect the tripot housing for unusual wear, cracks, or other damage.
15. Use the appropriate kit to replace any damaged parts.

**Assembly Procedure**

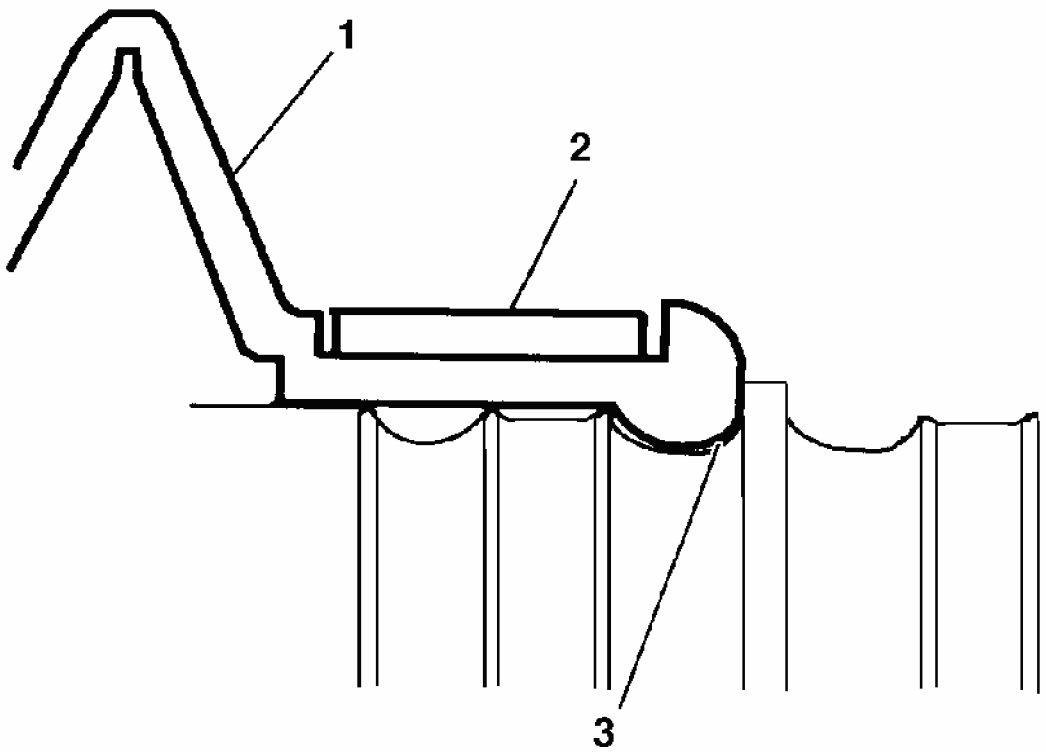



**Fig. 20: Positionng Small End Of Joint Seal Into Joint Seal Groove**
**Courtesy of GENERAL MOTORS CORP.**

1. Position the new swage clamp onto the neck of the boot. Do not swage.
2. Slide the new small swage clamp (2) and the boot (1) to the proper position on the halfshaft bar (3).
3. Position the neck of the boot in the boot groove on the halfshaft bar.

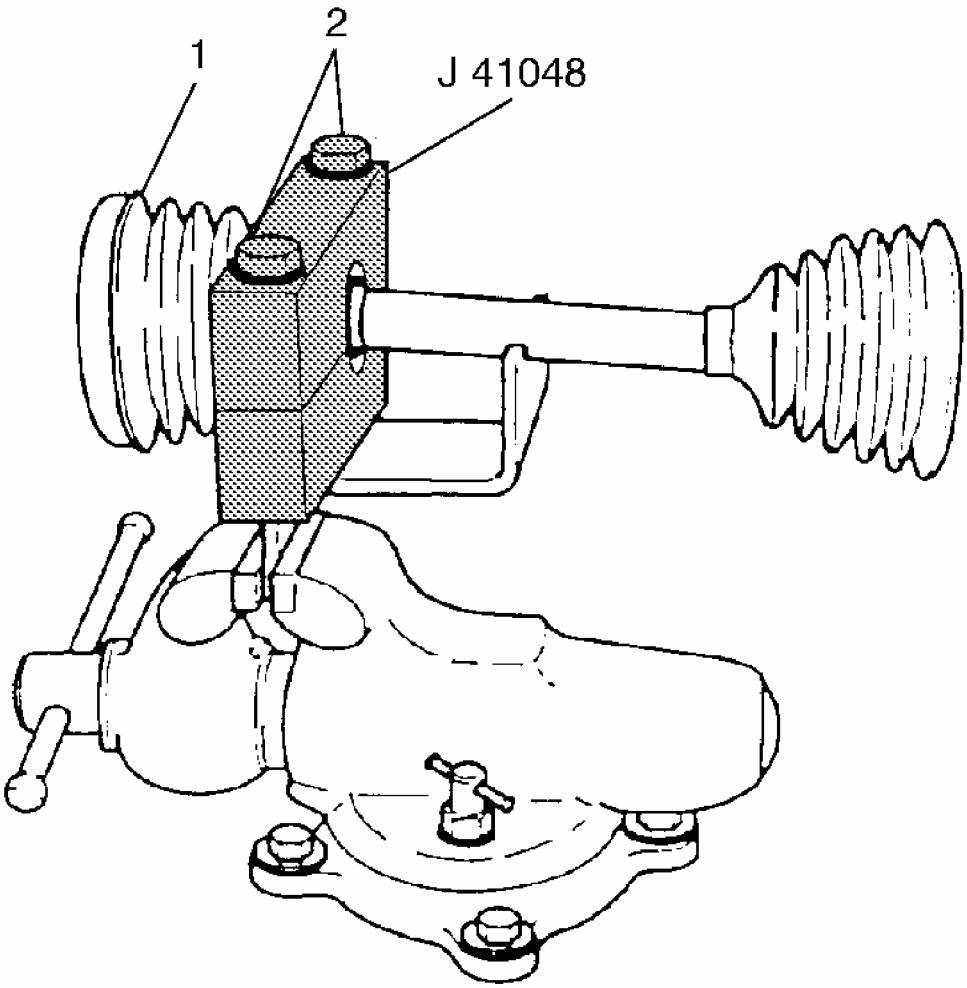



**Fig. 21: Swaging Retaining Clamp Ring**
**Courtesy of GENERAL MOTORS CORP.**

4. In order to swage the swage clamp, position the inboard end (1) of the halfshaft assembly in **J 41048** .

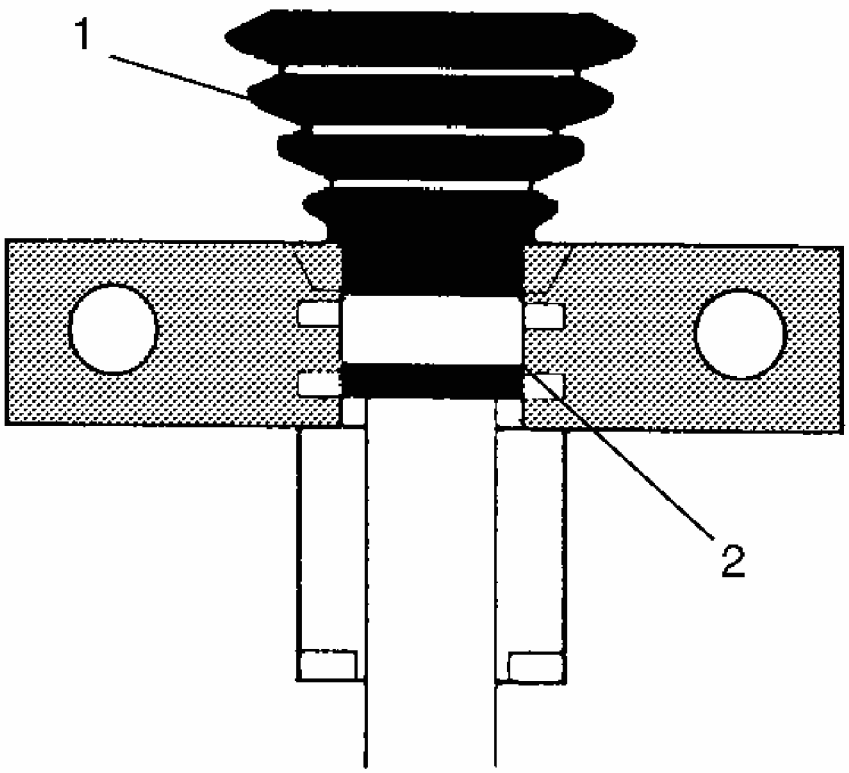



**Fig. 22: Identifying Halfshaft Inboard Seal & Swage Ring**
**Courtesy of GENERAL MOTORS CORP.**

5. Align the swage clamp (2) within**J 41048** .

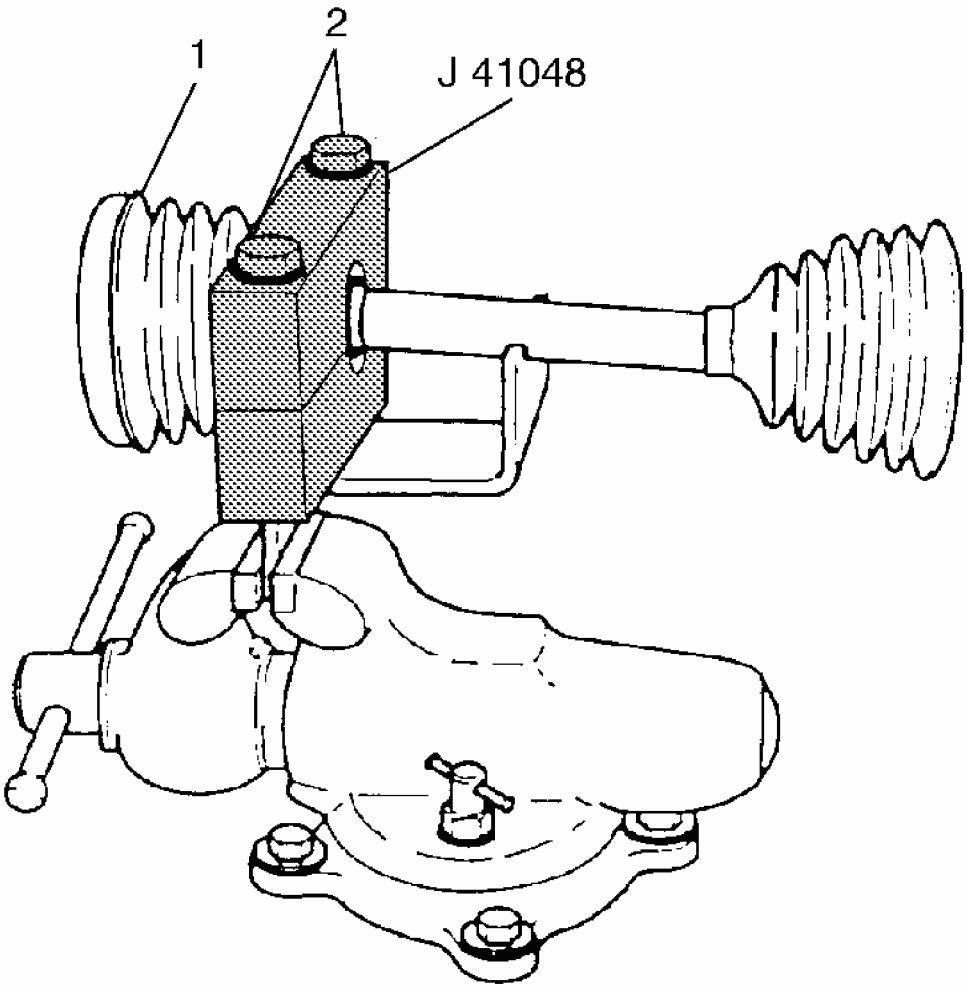



**Fig. 23: Swaging Retaining Clamp Ring**
**Courtesy of GENERAL MOTORS CORP.**

6. Place the top half of the **J 41048** on the bottom half.
7. Inspect to make sure there are no pinch points on the boot before proceeding.
8. Insert the bolts (2).
9. Tighten the bolts (2) by hand until snug.

**NOTE: Refer to Fastener Notice in Cautions and Notices.**

10. Align the following items:
    - The boot
    - The halfshaft bar

- The swage clamp

  **Tighten:** Each bolt 180 degrees at a time, using a ratchet wrench. Alternate between each bolt until both sides are bottomed.

11. Loosen the bolts.
12. Separate the dies.

**IMPORTANT: If deformities exist in the swage clamp, place the swage clamp back into J 41048 . Ensure the swage clamp covers the whole swaging area. Re-swage the swage clamp.**

13. Inspect the swage clamp for any "lip" deformities.

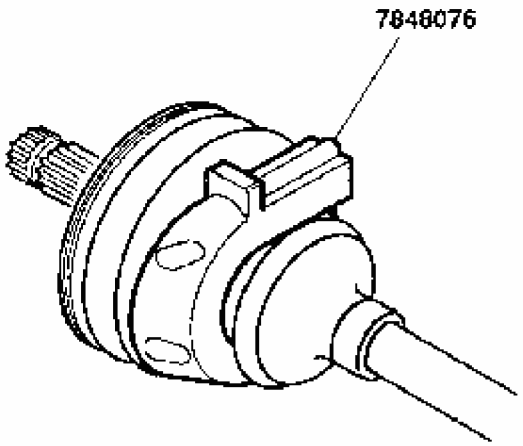



**Fig. 24: View Of Convolute Retainer In The Correct Position**
**Courtesy of GENERAL MOTORS CORP.**

**IMPORTANT: Assemble the joint with the convolute retainer in the correct position. Assemble the joint to meet the specified dimension to avoid boot damage.**

14. Install the convolute retainer over the boot capturing four convolutions.

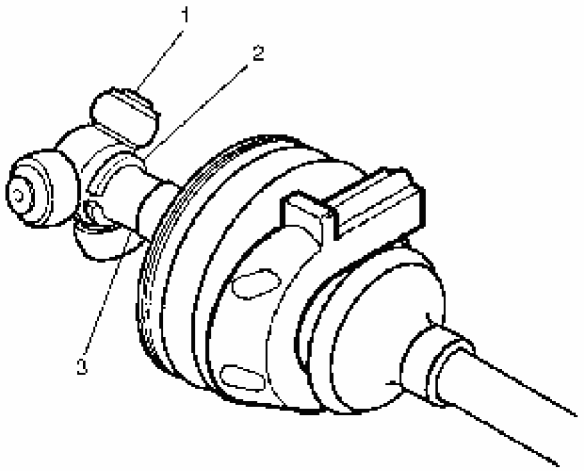



**Fig. 25: Locating Spider Assembly Components**
**Courtesy of GENERAL MOTORS CORP.**

**IMPORTANT: Ensure that the rings are fully seated.**

15. Install the spacer ring (2) and spider assembly (1) onto the halfshaft bar (3).
16. Install the other spacer ring in the groove at the end of the halfshaft bar. Ensure that the rings are fully seated.

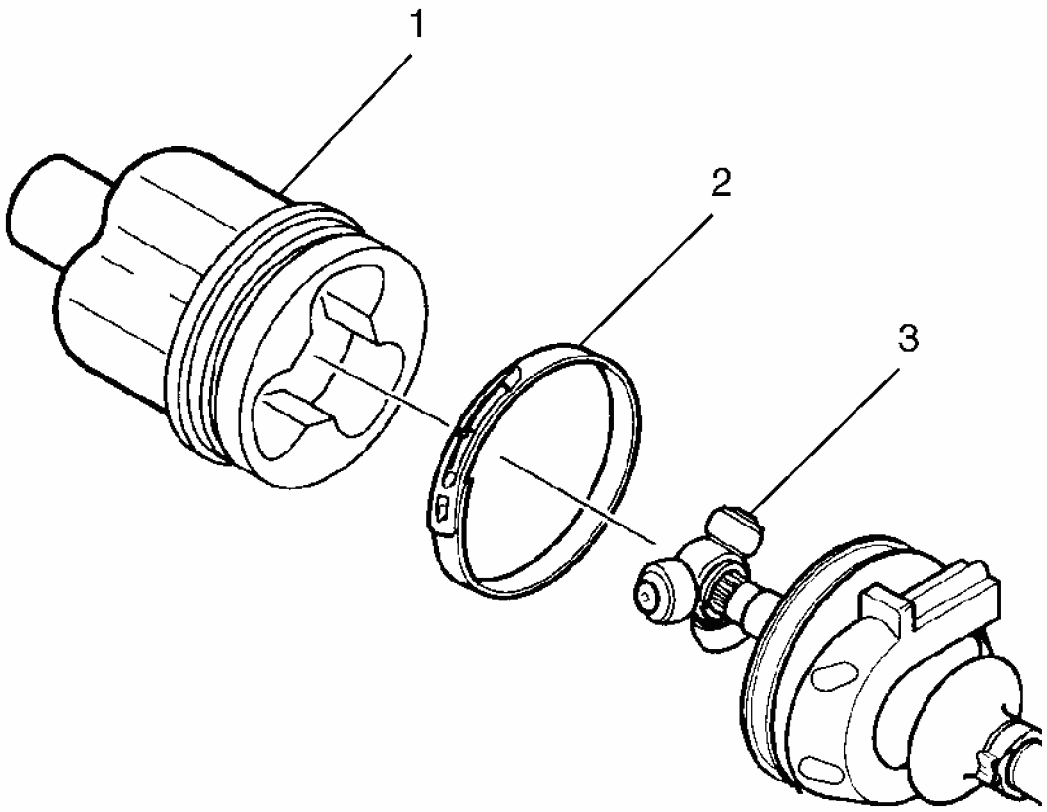



**Fig. 26: Locating Boot & Housing Components**
**Courtesy of GENERAL MOTORS CORP.**

17. Pack the boot and housing with the grease supplied in the kit. The amount of grease supplied in this kit has been pre-measured for this application.
18. Place the large retaining clamp (2) on the boot.
19. Place the housing (1) and the new trilobal tripot bushing over the spider assembly (3).
20. Install the boot onto the trilobal tripot bushing.

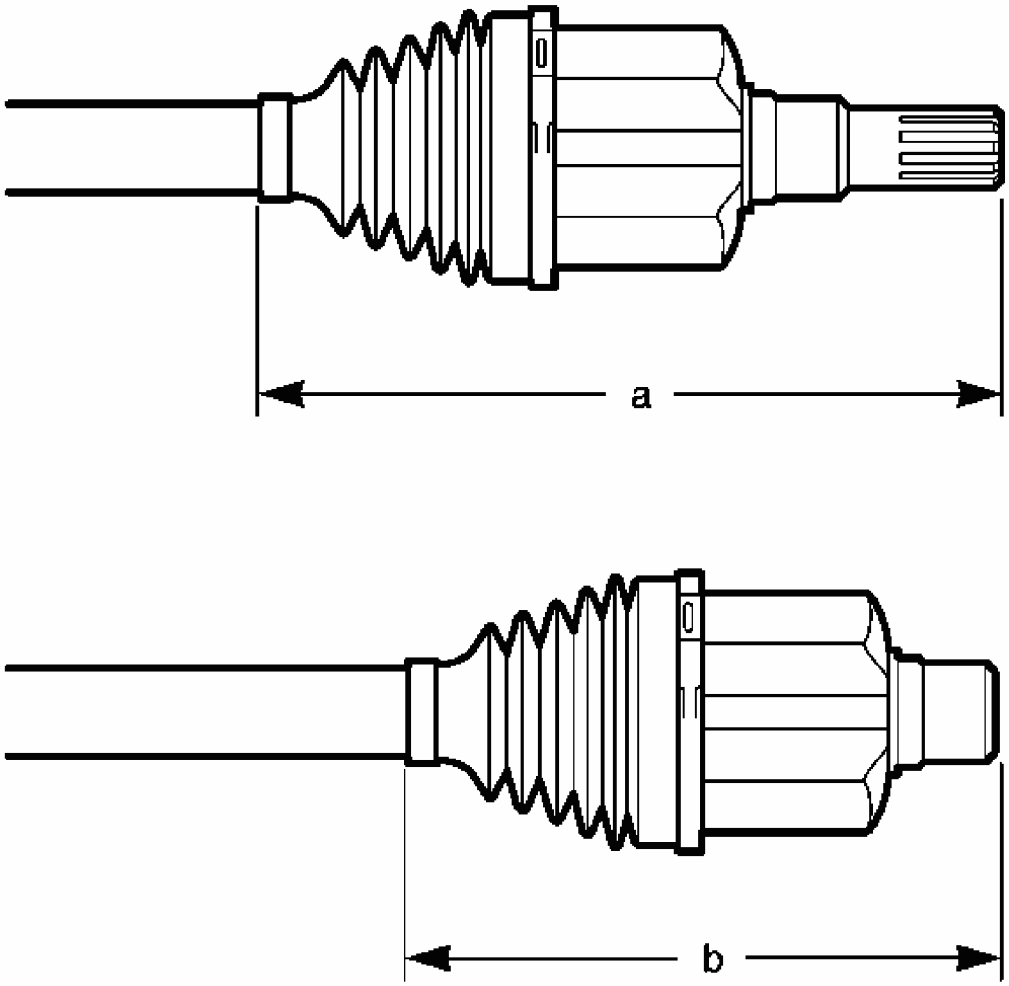



**Fig. 27: Inspecting Inboard Stroke Position**
**Courtesy of GENERAL MOTORS CORP.**

21. Inspect the inboard stroke position (see diagram).
    - For male tripot housing assembly: dimension a = 280 mm (11 in).
    - For female tripot housing assembly: dimension b = 228 mm (9 in).

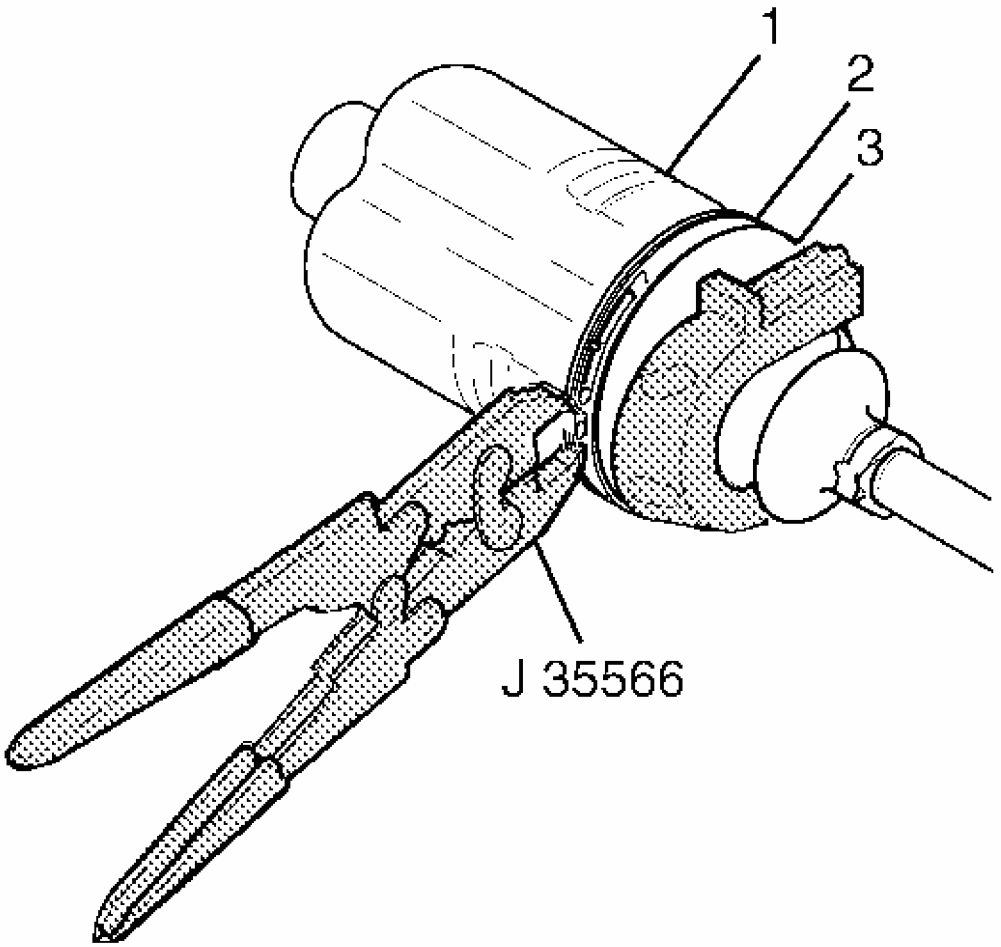



**Fig. 28: Securing Large Retaining Clamp & Boot To Housing**
**Courtesy of GENERAL MOTORS CORP.**

22. Secure the large retaining clamp (2) and the boot (3) to the housing (1) using **J 35566** .

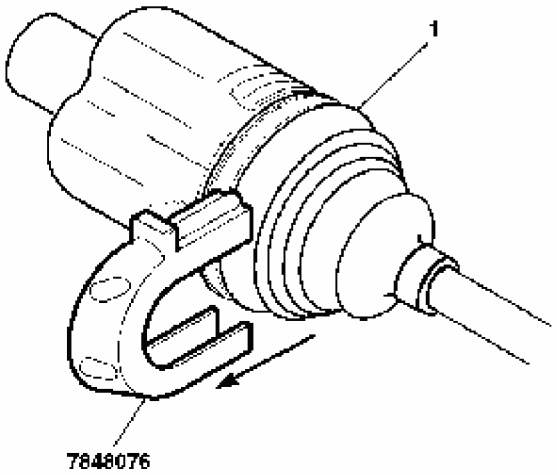



**Fig. 29: Removing Convolute Retainer From Boot**
**Courtesy of GENERAL MOTORS CORP.**

23. Remove the convolute retainer from the boot (1).

**WHEEL DRIVE SHAFT OUTER JOINT AND SEAL REPLACEMENT**

## Tools Required

- **J 35910** Seal Clamp Tool. See **Special Tools and Equipment**.
- **J 41048** Swage Clamp Tool. See **Special Tools and Equipment**.
- **J 8059** Snap Ring Pliers. See **Special Tools and Equipment**.

**Disassembly Procedure**

1. Place protective covers over the vise jaws.

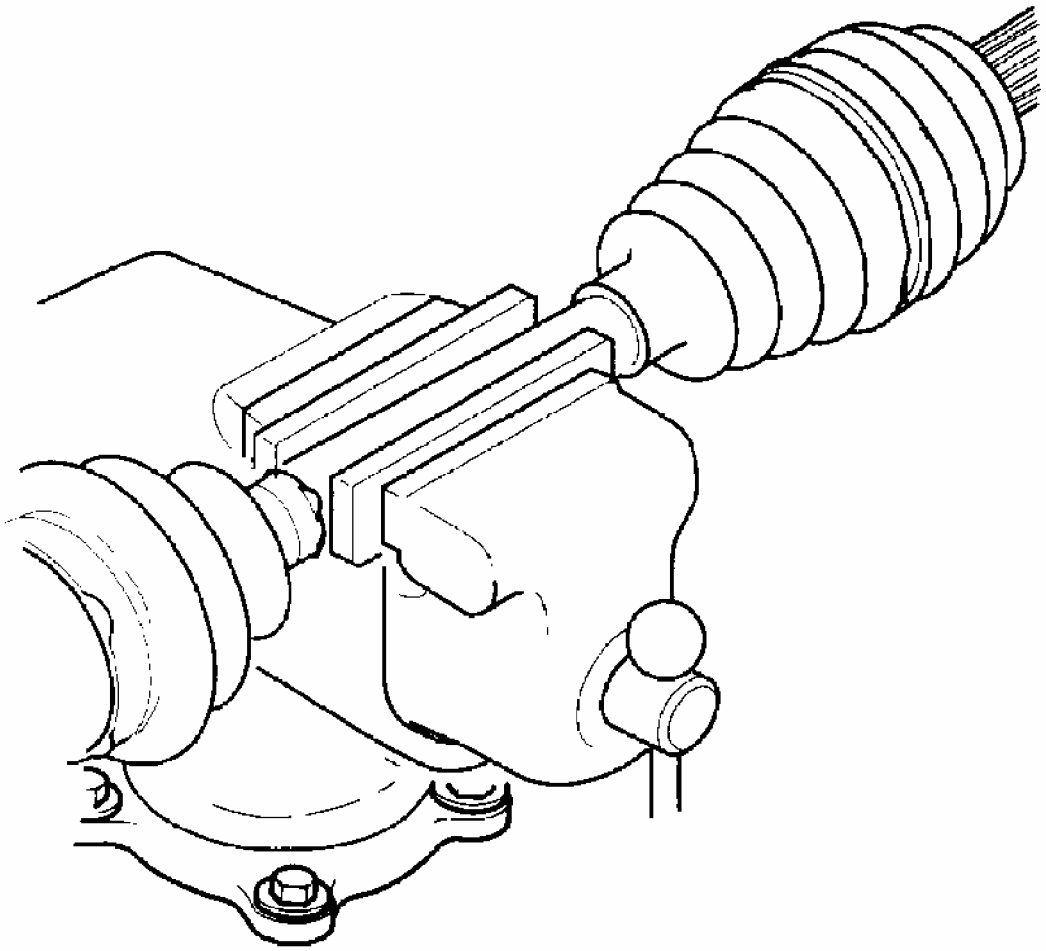


**Fig. 30: Placing Halfshaft In Vise**
**Courtesy of GENERAL MOTORS CORP.**

2. Place the halfshaft in a vise.

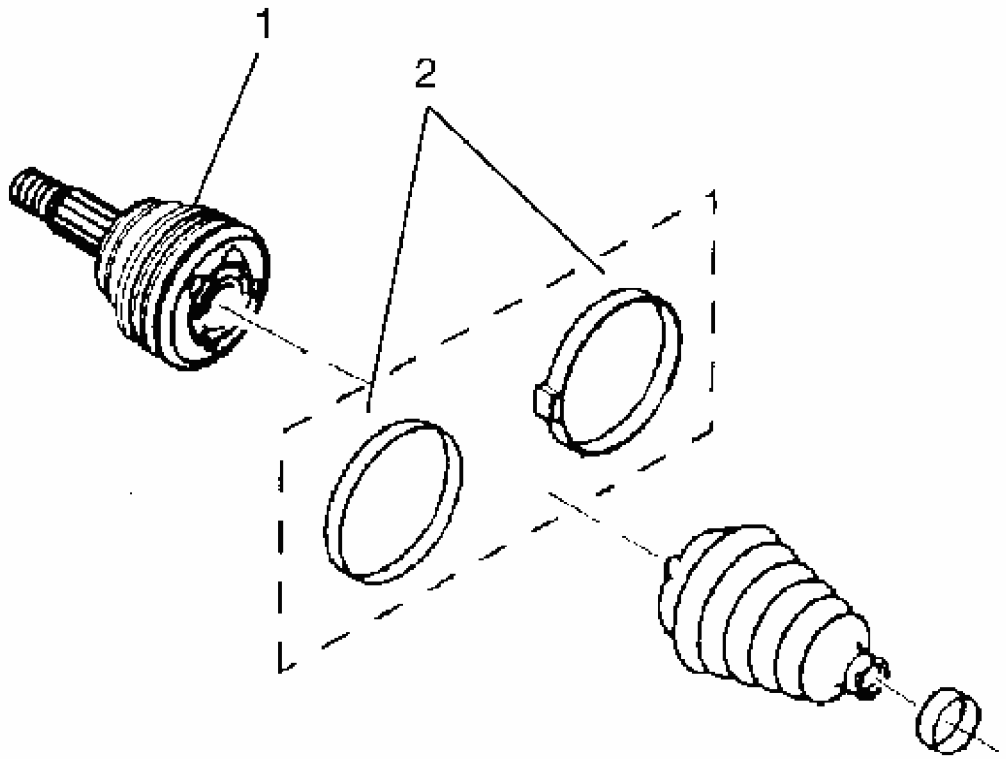



**Fig. 31: Locating Swage Rings**
**Courtesy of GENERAL MOTORS CORP.**

3. Use a hand grinder to cut through the swage rings (2). Do not damage the outer race.
4. Compress the seal on the halfshaft and away from the CV joint outer race (1).
5. Wipe all grease away from the face of the CV joint.

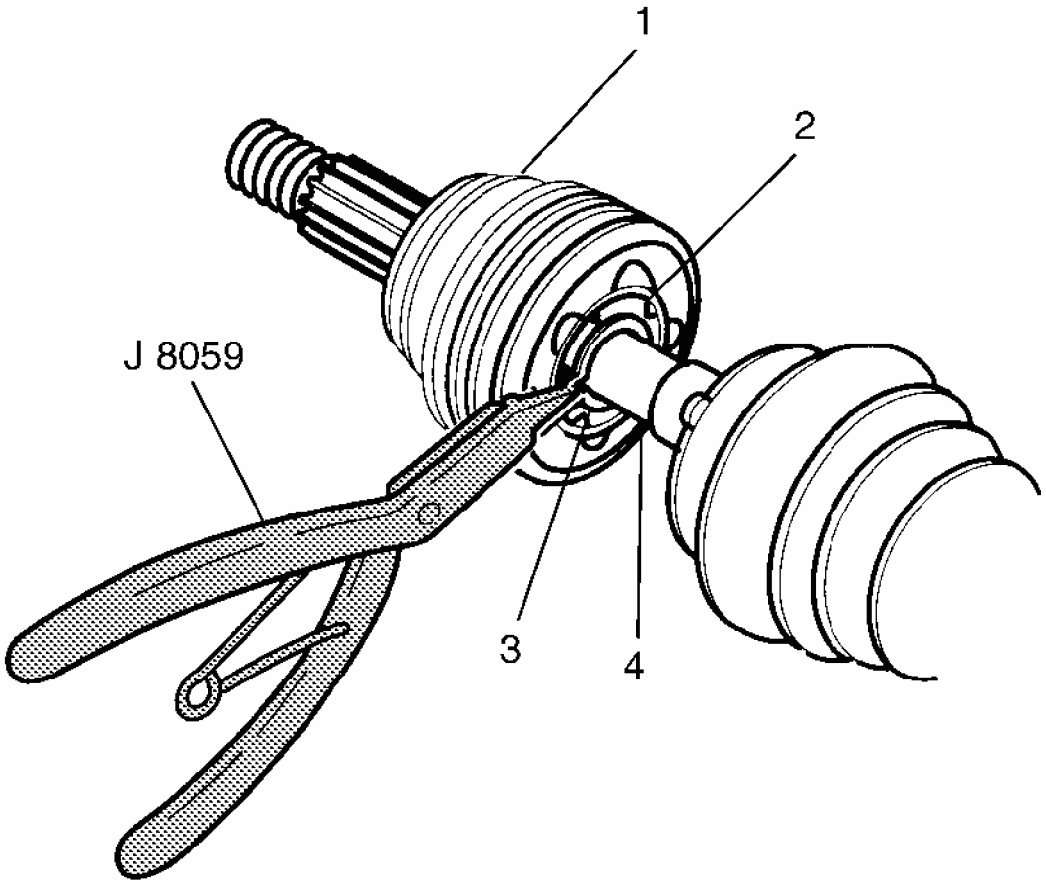



**Fig. 32: Locating Halfshaft Components**
**Courtesy of GENERAL MOTORS CORP.**

6. Find the halfshaft retaining snap ring (3), which is located in the inner race (2).
7. Spread the snap ring ears apart using**J 8059** (or equivalent).
8. Pull the CV joint from the halfshaft (4).
9. Discard the old seal.

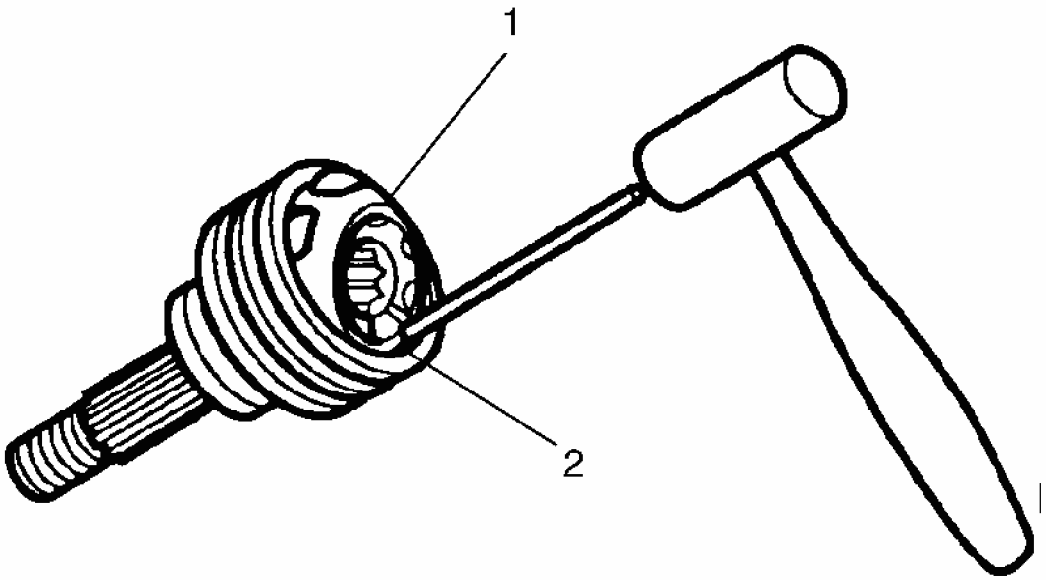



**Fig. 33: Taping Gently On Brass Drift With A Hammer In Order To Tilt Cage**
**Courtesy of GENERAL MOTORS CORP.**

10. Place a brass drift against the cage (1).
11. Tap gently on the brass drift in order to tilt the cage.
12. Remove the first ball (2) when the cage tilts.
13. Repeat the previous step to remove all of the balls.

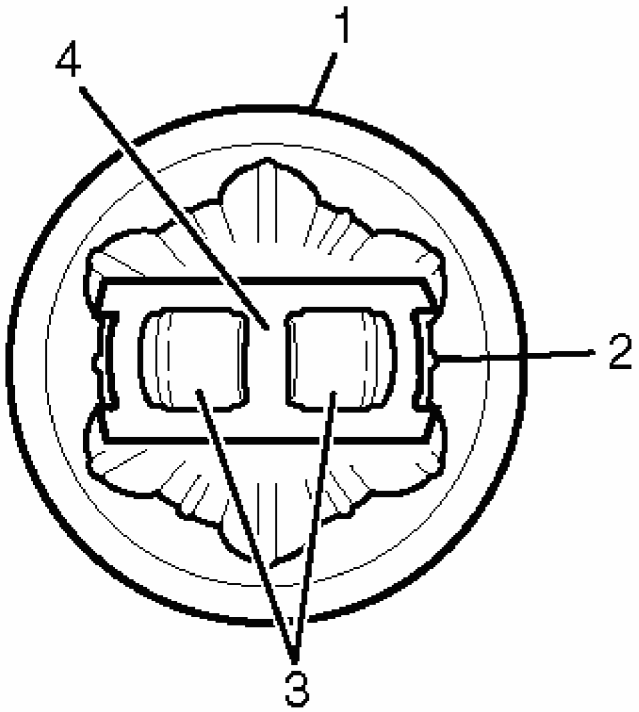



**Fig. 34: View Of Outer Race, Inner Race, Cage Window & CV Joint Cage**
**Courtesy of GENERAL MOTORS CORP.**

14. Pivot the cage (4) and the inner race 90 degrees to the centerline of the outer race (1). At the same time, align the cage windows (3) with the lands of the outer race (2).
15. Lift out the cage (4) and the inner race.

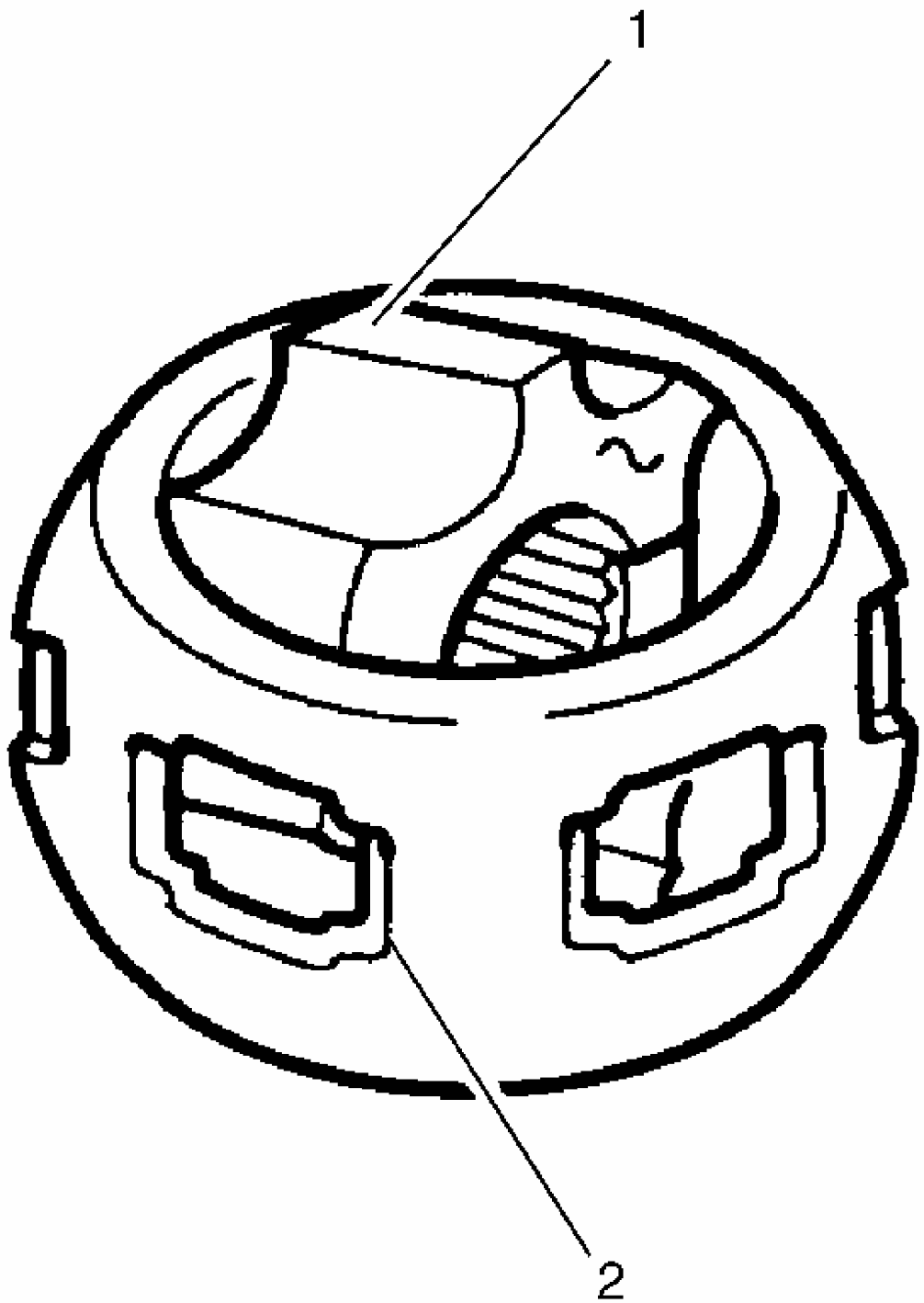



**Fig. 35: View Of Inner Race & Cage**
**Courtesy of GENERAL MOTORS CORP.**

16. Remove the inner race (1) from the cage (2) by rotating the inner race (1) upward.
17. Thoroughly degrease all of the CV joint parts.
18. Check the outer CV joint assembly for unusual wear, cracks, or other damage. Replace any damaged parts.
19. Clean the halfshaft bar. Use a wire brush to remove any rust in the seal mounting area (grooves).

**Assembly Procedure**

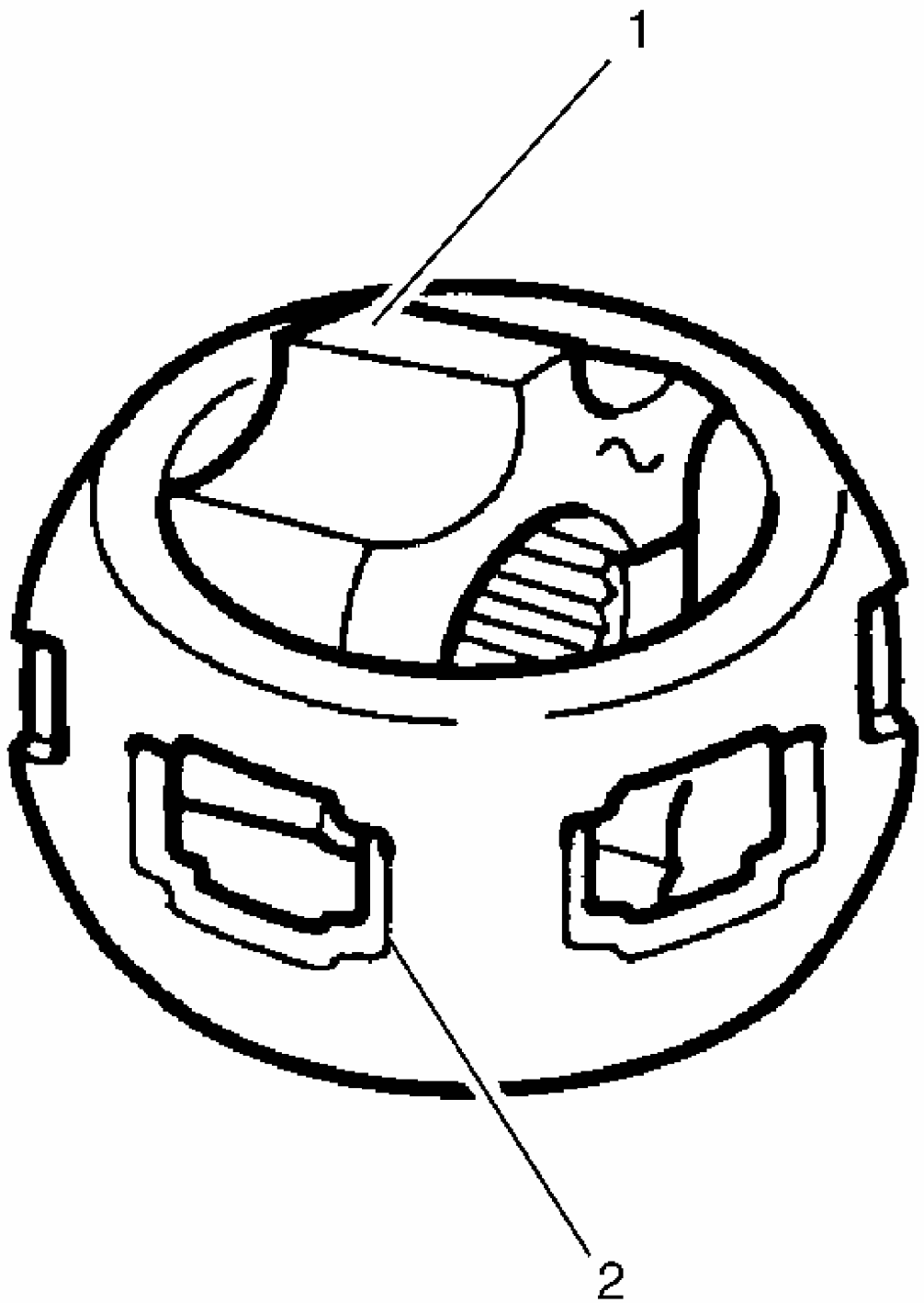



**Fig. 36: View Of Inner Race & Cage**
**Courtesy of GENERAL MOTORS CORP.**

**IMPORTANT: Replace the joint assembly if necessary.**

1. Inspect all of the parts for unusual wear, cracks, or other damage.
2. Put a light coat of the recommended grease on the inner and the outer race grooves.
3. Insert the inner race (1) into the cage (2) by rotating the inner race downward.
4. Hold the inner race (1) at 90 degrees to the centerline of the cage.

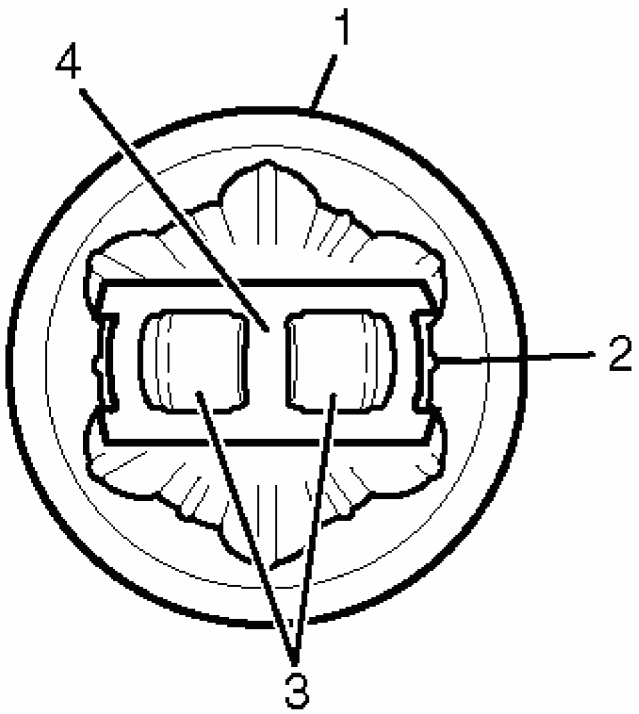



**Fig. 37: View Of Outer Race, Inner Race, Cage Window & CV Joint Cage**
**Courtesy of GENERAL MOTORS CORP.**

5. Align the lands of the inner race (2) with the windows of the cage (3).
6. Rotate the inner race downward to insert the inner race into the cage.
7. Insert the cage (4) and inner race into the outer race (1).

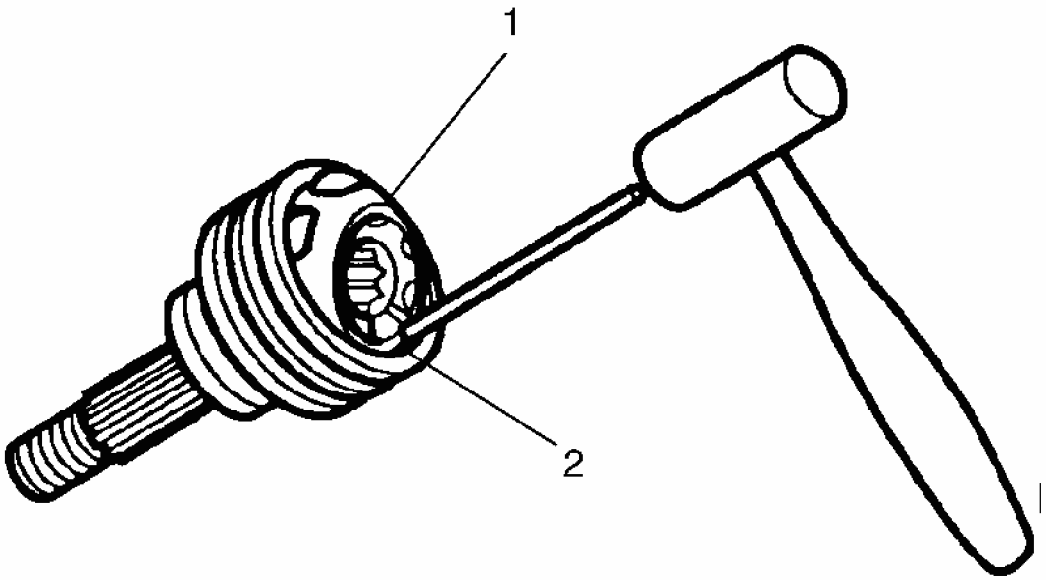



**Fig. 38: Taping Gently On Brass Drift With A Hammer In Order To Tilt Cage**
**Courtesy of GENERAL MOTORS CORP.**

8. Place a brass drift against the cage (1).
9. Tap gently on the brass drift in order to tilt the cage (1).
10. Install the first ball (2) when the cage tilts.
11. Repeat previous step to reinstall all of the balls.

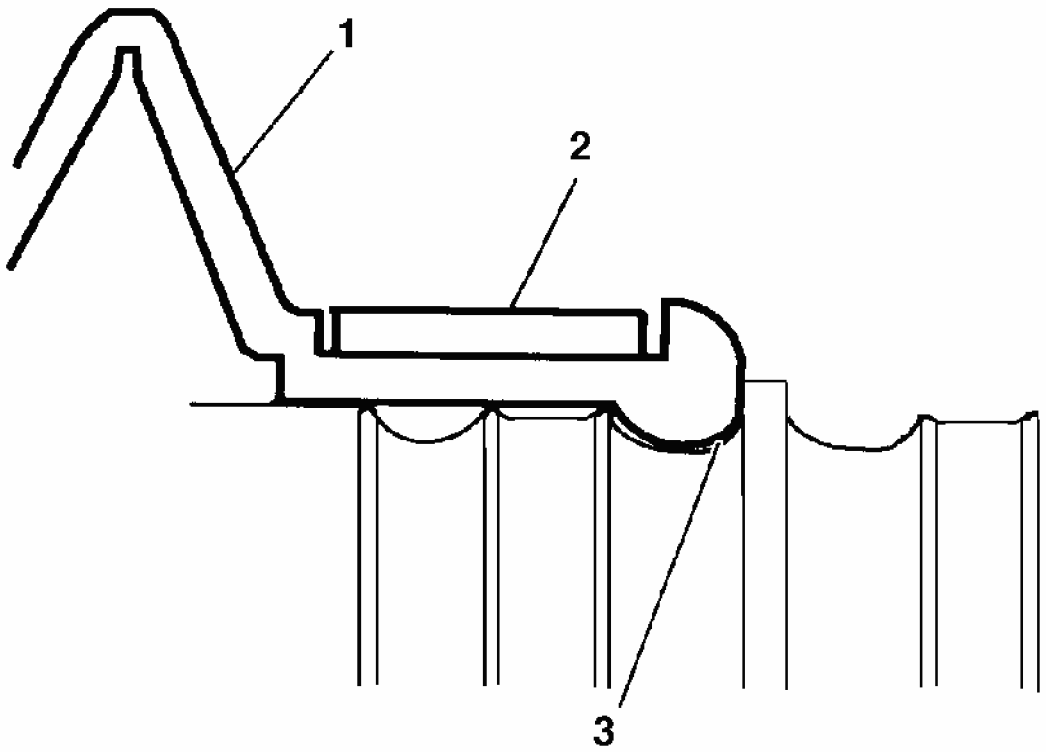



**Fig. 39: Positionng Small End Of Joint Seal Into Joint Seal Groove**
**Courtesy of GENERAL MOTORS CORP.**

12. Pack the CV joint seal and the CV joint assembly with the grease supplied in the kit. The amount of grease supplied in this kit has been pre-measured for this application.
13. Place the new small swage clamp (2) onto the CV joint seal (1).
14. Place the large retaining clamp on the seal (1).
15. Position the small end of the CV joint seal (1) into the joint seal groove (3) on the halfshaft bar.

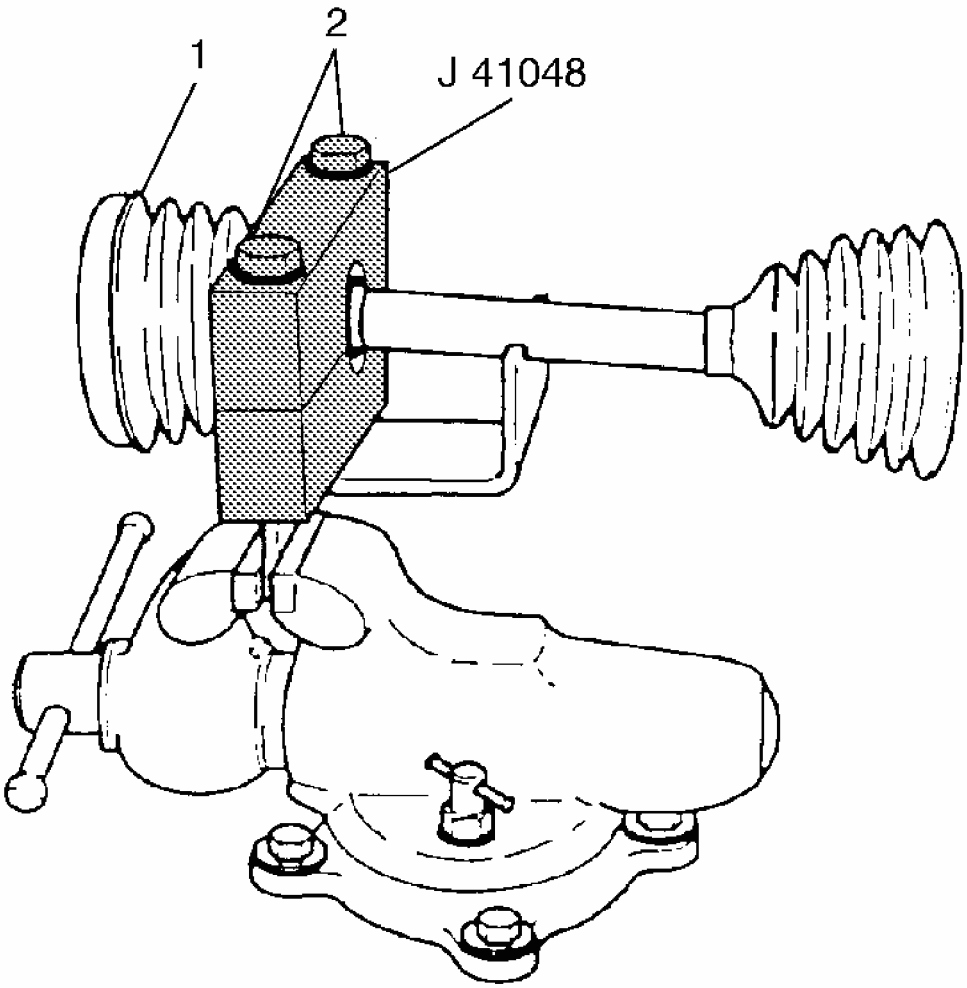



**Fig. 40: Swaging Retaining Clamp Ring**
**Courtesy of GENERAL MOTORS CORP.**

16. Position the outboard end of the halfshaft assembly (1) in **J 41048** .

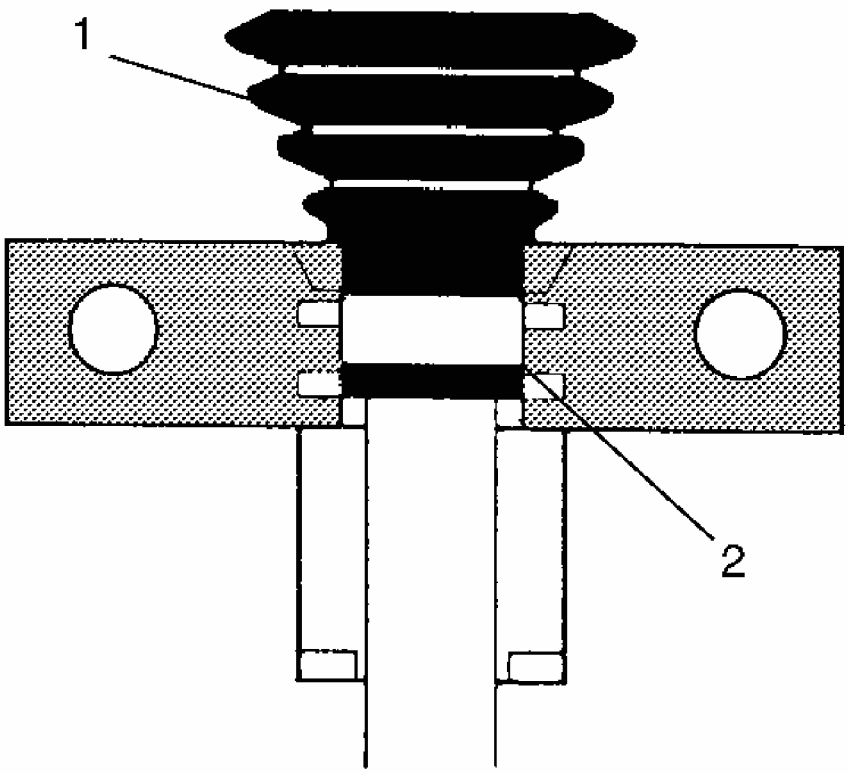



**Fig. 41: Identifying Halfshaft Inboard Seal & Swage Ring**
**Courtesy of GENERAL MOTORS CORP.**

17. Align the swage clamp (2) within **J 41048** .

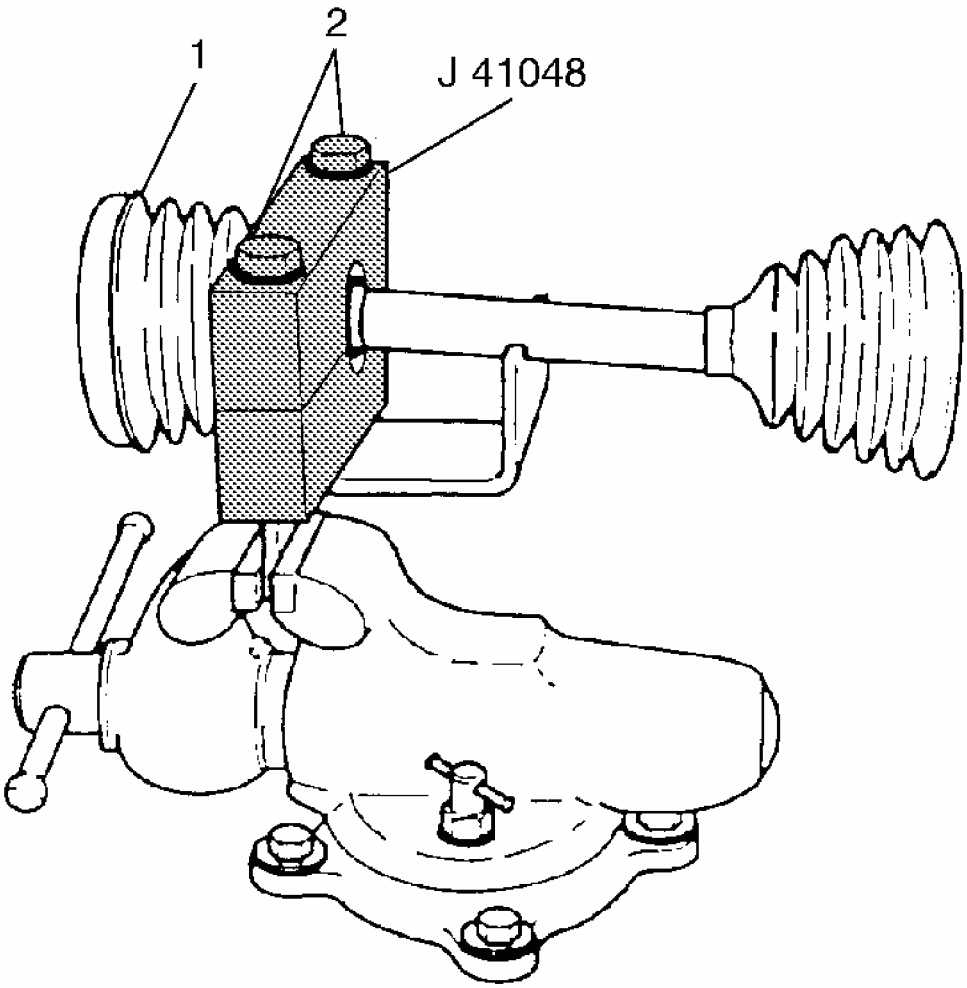



**Fig. 42: Swaging Retaining Clamp Ring**
**Courtesy of GENERAL MOTORS CORP.**

18. Place the top half of the **J 41048** on the bottom half.
19. Check to make sure there are no pinch points on the seal before proceeding with procedures.
20. Insert the bolts (2). Tighten the bolts (2) by hand until snug.

**NOTE: Refer toFastener Notice in Cautions and Notices.**

21. Align the following items:
    - The seal
    - The halfshaft bar

- The swage clamp

  **Tighten:** Tighten each bolt 180 degrees at a time, using a ratchet wrench. Alternate between each bolt until both sides are bottomed.

22. Loosen the bolts.
23. Separate the dies.
24. Check the swage clamp for any "lip" deformities. If the deformities exist, place the swage clamp back into the **J 41048** .

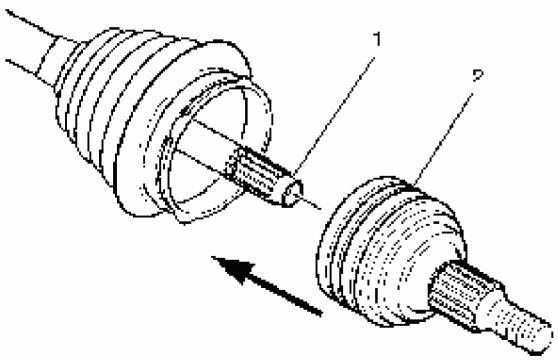



**Fig. 43: View Of CV Joint Inner Race Facing Halfshaft Bar**
**Courtesy of GENERAL MOTORS CORP.**

**IMPORTANT: Ensure that the retaining ring side of the CV joint inner race faces the halfshaft bar (1) before installation.**

25. Place the retaining snap ring into the CV joint inner race.

**IMPORTANT: The retaining snap ring inside of the inner race engages in the halfshaft bar groove with a click when the CV joint is in the proper position.**

26. Slide the CV joint (2) onto the halfshaft bar (1).
27. Pull on the CV joint (2) to verify engagement.

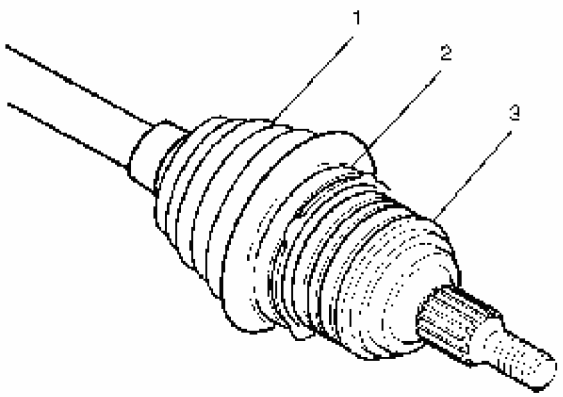



**Fig. 44: Locating CV Joint Outer Race Components**
**Courtesy of GENERAL MOTORS CORP.**

28. Slide the large diameter of the CV joint seal (1), with the large retaining ring (2) in place, over the outside edge of the CV joint outer race (3).
29. Position the lip of the CV joint seal (1) into the groove on the CV joint outer race (3).
30. Manipulate the CV joint seal (1) to remove any excess air.

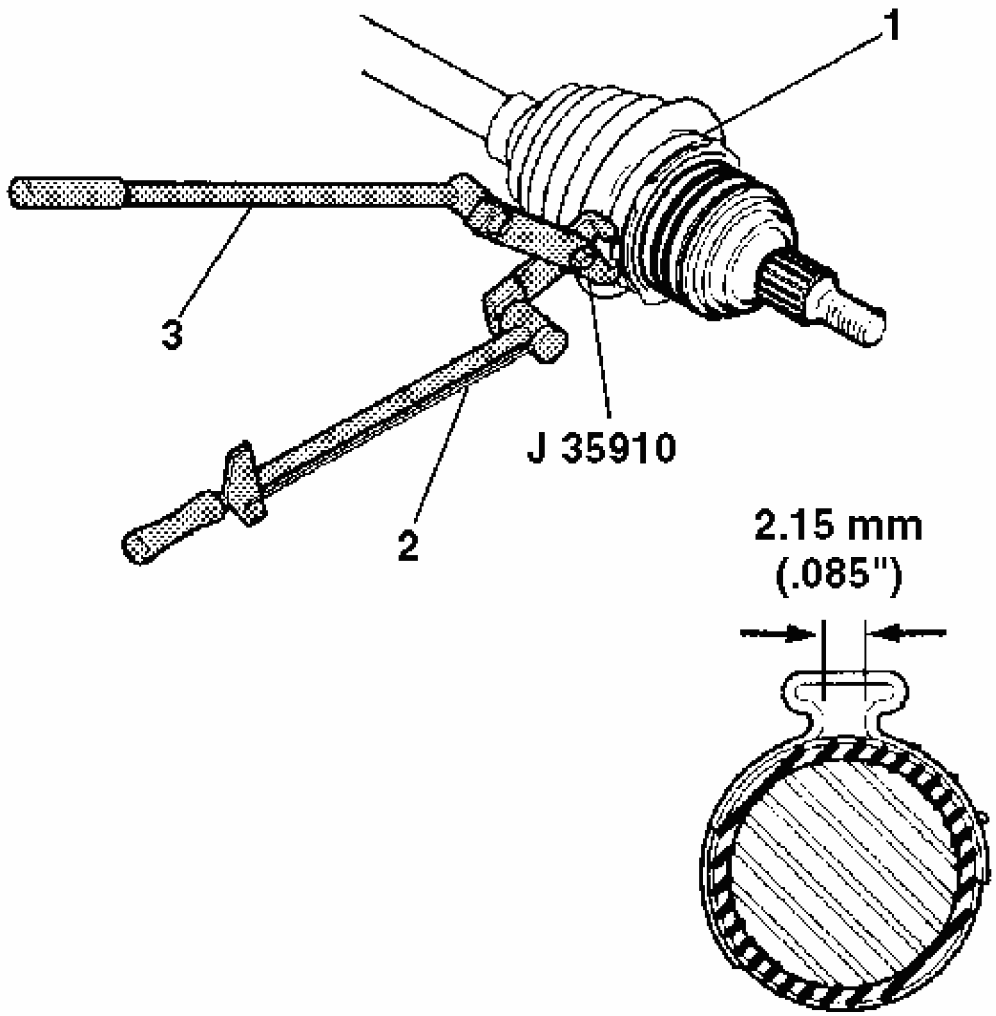



**Fig. 45: Securing Large Retaining Clamp To Housing**
**Courtesy of GENERAL MOTORS CORP.**

31. Secure the large retaining clamp (1) to the housing with **J 35910** (or equivalent), a breaker bar (3), and a torque wrench (2).

    **Tighten:** Torque the large retaining clamp (1) to 176 N.m (130 lb ft).

32. Check the gap dimension on the clamp ear.

## DESCRIPTION AND OPERATION

### WHEEL DRIVE SHAFTS DESCRIPTION AND OPERATION

Front Wheel Drive Shafts are flexible assemblies which consist of the following components:

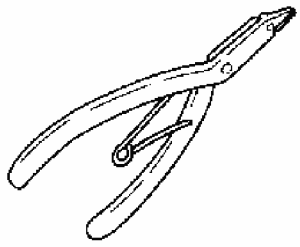
- Front wheel drive shaft constant velocity joint outer joint.
- Front wheel drive shaft tri-pot joint inner joint.
- The front wheel drive shaft connects the front wheel drive shaft tri-pot joint and the front wheel drive shaft constant velocity joint.
- Wheel Drive Shaft Seal Cover 15 Series
- The front wheel drive shaft tri-pot joint is completely flexible, and moves with an in and out motion.
- The front wheel drive shaft constant velocity joint is flexible but can not move in and out.

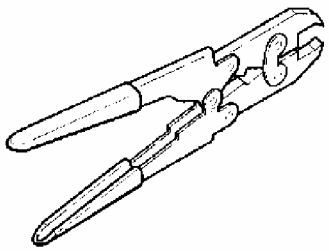
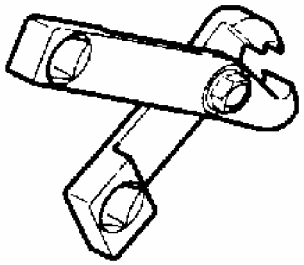
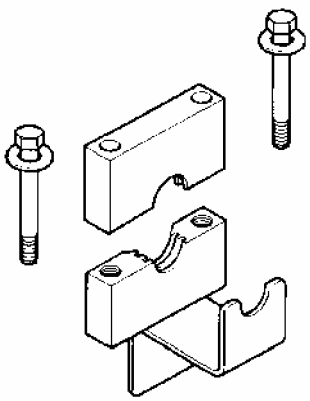
The Wheel Drive Shaft is a balanced shaft that transmits rotational force from the front differential to the front wheels when the transfer case is engaged. The wheel drive shaft is mounted to the front differential by bolting the flange of the wheel drive shaft to the flange on the inner output shaft of the front differential. The other end of the wheel drive shaft is splined to fit into and drive the hub assembly when the transfer case is engaged. The tri-pot joint and constant velocity joint on the wheel drive shaft allows the shaft to be flexible to move with the suspension travel of the vehicle.

## SPECIAL TOOLS AND EQUIPMENT

### SPECIAL TOOLS

**Special Tools**

| Illustration | Tool Number/ Description |
|---|---|
|  | J 8059<br>Snap Ring Pliers |
| | J 35566 |

| | |
|---|---|
|  | Earless Seal Clamp Tool |
|  | J 35910<br>Seal Clamp Tool |
|  | J 41048<br>Swage Clamp Tool |